



**ECONOMIC AND SOCIAL INDICATORS  
FOR THE SOUTH AUSTRALIAN  
SPENCER GULF PRAWN FISHERY  
2021/22**

**A Report for the Department of  
Primary Industries and Regions**

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## ABBREVIATIONS

ABARES	Australian Bureau of Agricultural and Resource Economics and Sciences
ABS	Australian Bureau of Statistics
CPI	Consumer Price Index
FRDC	Fisheries Research and Development Corporation
fte	full time equivalent
GRP	gross regional product
GSP	gross state product
GVP	gross value of production
NER	net economic return
PIRSA	Department of Primary Industries and Regions
R&M	repairs and maintenance
RBA	Reserve Bank of Australia
SA	South Australia
SARDI	South Australian Research and Development Institute
SGWCPFA	Spencer Gulf and West Coast Prawn Fishermen's Association

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## EXECUTIVE SUMMARY

The objective of this report is to present a set of economic and social performance indicators for the Spencer Gulf (SG) Prawn Fishery for 2021/22 as well as to develop a consistent time series of economic and social information to aid management of the fishery in future years. The economic and social indicators detailed in this report are summarised below.

### Economic Performance Indicators

This report examines the performance of the fishery against the second goal of the management plan, which is to “ensure optimal utilisation and equitable distribution”. Specific performance indicators outlined in the management plan are detailed in Table ES-1. These performance indicators are presented against the reference points, also outlined in the management plan, and the three-year trend in results.

A summary of key economic indicators for the last four years is presented in Table ES-2.

**Table ES-1** Spencer Gulf Prawn Fishery performance indicators and trends

Performance Indicator	Reference Points	Reference Period Trends (2018/19 - 2021/22)
Trend in Gross Value of Production (GVP) of commercial fishery	GVP monitored regularly	Reporting of GVP occurred annually between 1997/98 and 2021/22. The trend between 2018/19 and 2021/22 was a 36 per cent decrease in real GVP.
Trend in Gross Operating Surplus (GOS) of commercial fishery	GOS monitored regularly	Reporting of GOS occurred annually between 1997/98 and 2021/22. The trend between 2018/19 and 2021/22 was a 30 per cent decrease in real GOS.
Trend in Return of Investment (ROI) of commercial fishery	ROI monitored regularly	Reporting of ROI occurred annually between 1997/98 and 2021/22. The trend between 2018/19 and 2021/22 was a decrease in real return to total capital from 3.6% in 2018/19 to 1.8% in 2021/22.
Economic Indicators report	Economic indicator report conducted regularly	Report produced in each year.
Number of FTEs directly and indirectly employed	Number of FTEs monitored when available	Reporting of direct and indirect fte employment occurred annually between 1997/98 and 2021/22.  The trend between 2018/19 and 2021/22 was a 26 per cent decrease in direct employment. Indirect employment decreased by 20 per cent over the same period.

Table ES-2 Summary of key economic indicators for Spencer Gulf Prawn Fishery, 2018/19 to 2021/22 <sup>a</sup>

Indicator	2018/19	2019/20	2020/21	2021/22
Catch	2,121t	1,743t	1,837t	1,372t
GVP	\$45.7m	\$25.0m	\$37.9m	\$29.1m
Fee/licence	\$32,342	\$30,894	\$28,771	\$24,805
Fee/GVP	2.8%	4.8%	3.0%	3.3%
Gross operating surplus	\$312,184	-\$30,331	\$165,937	\$217,131
Return on fishing gear and equip	13.9%	-6.7%	5.8%	6.1%
Return on total capital	3.6%	-2.0%	1.5%	1.8%
Licence value	\$5.0m	\$3.7m	\$4.5m	\$4.3m
Gross state product	\$119.6m	\$84.3m	\$102.0m	\$81.7m
Employment <sup>b</sup>	995 fte	845 fte	900 fte	766 fte
Net economic return	\$3.2m	-\$9.0m	-\$1.8m	-\$2.2m
Net economic return/GVP	8.4%	-43.3%	-5.3%	-7.5%

<sup>a</sup> Dollar values in this table are in real 2021/22 dollars.

<sup>b</sup> Estimates for 2018/19, 2019/20, and 2020/21 have been revised using updated information received in 2021/22.

### Catch and Gross Value of Production

Total catch in the Spencer Gulf Prawn Fishery averaged around 1,900 tonnes per annum between 2002/03 and 2021/22. The highest level of catch over the period was in 2009/10 and 2017/18 (2,361 tonnes) and lowest level in 2021/22 (1,372 tonnes). The number of nights fished in 2021/22 was the second lowest for the 20 year period, contributing to the reduced catch in 2021/22.

The real value of the Spencer Gulf Prawn Fishery catch followed a declining trend between 2002/03 to 2021/22. In 2021/22, GVP was almost \$29.1 million, 30 per cent lower than the 20-year average (\$41.3 million in real terms). Real GVP was notably low in 2019/20 primarily due to lowered prawn prices triggered by the COVID-19 pandemic, and a reduced number of nights fished due to a more conservative fishing strategy. In 2021/22 real GVP was low due to the reduction in catch.

The average real price (2021/22 dollars) for Spencer Gulf Prawns peaked in 2003/04 at around \$32/kg (around \$21/kg nominal price), before declining to a low of \$15/kg (\$12/kg in nominal price) in 2009/10. It has since followed a slight increasing trend, despite year to year fluctuations, and was \$21.20/kg in 2021/22.

### Management Costs

Licence fees as a percentage of GVP fluctuated between years but overall increased from 2.4 per cent in 2002/03 to 4.8 per cent in 2019/20, where it peaked at a 20-year high. This was due to the decreased GVP in 2019/20 as noted above. Licence fees as a percentage of GVP have since fallen and were 3.3 per cent in 2021/22 as a result of a fall in aggregate licence fees.

As the number of licence holders has not changed in the last 20 years, changes in fees per licence holder are directly linked to changes in total fees. In real terms, aggregate licences fees reached a 20 year low of \$967,000 in 2021/22 and, accordingly, so did the average fee per licence holder (\$24,805).

### Financial Measures

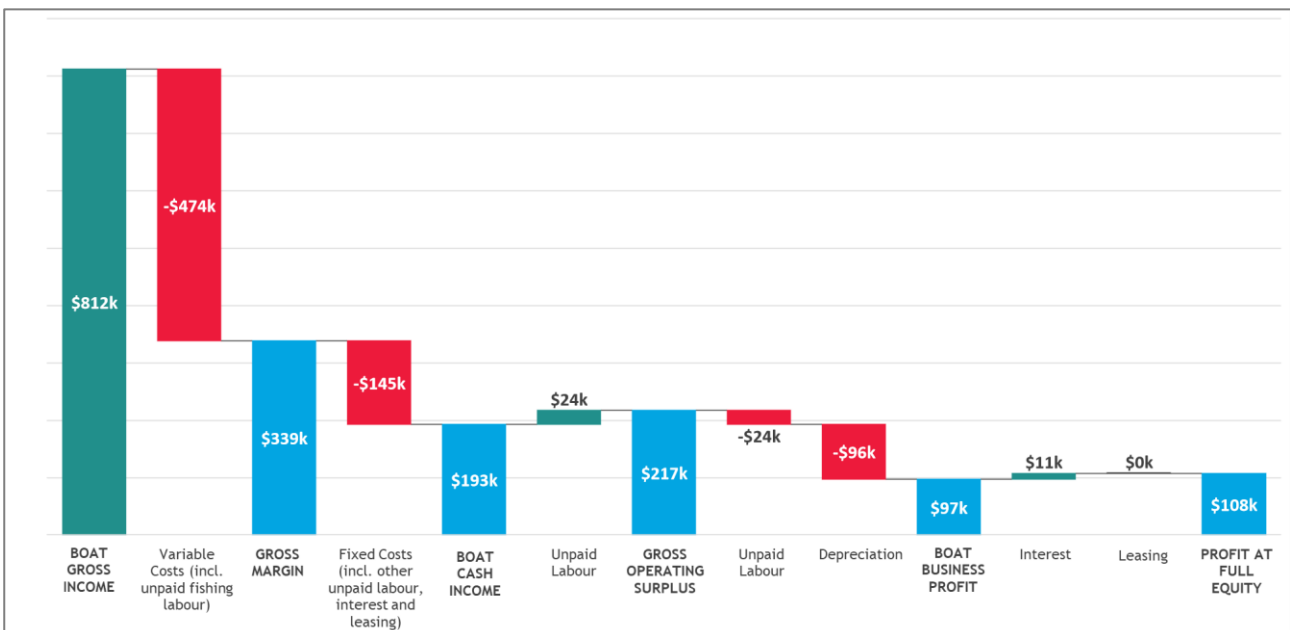
The Spencer Gulf Prawn Fishery had an upturn in many of the economic indicators over the period 2011/12 to 2018/19 due to a combination of stable or improving prices and an increase in catch. This is of particular note considering that between 2002/03 and 2011/12 price followed a decreasing trend along with many of the indicators. Most of the indicators declined significantly in 2019/20 due to a reduction in nights fished and the impacts of the COVID-19 pandemic but improved in 2020/21 and 2021/22.

As the total number of licence holders in the fishery has not changed over the period of analysis, changes in the average income per boat relate to the total GVP for the fishery. The average income per boat (in real terms) decreased from \$982,000 in 2002/03 to approximately \$812,000 in 2021/22 to be below the 20-year average of \$971,000.

In each year of the analysis, labour costs accounted for the largest share of total cash costs. Other significant cash costs were fuel, repairs and maintenance, and licence fees.

Profitability generally followed a decreasing trend over the period 2002/03 to 2021/22 with some fluctuations. This was a result of declining gross boat income relative to fishing costs. The average profit at full equity was estimated to be approximately \$108,000 per boat in 2021/22, a 13 per cent decrease from 2002/03 (\$123,000 per boat in real terms). The calculation of profit at full equity is illustrated in Figure ES-1 for 2021/22.

Figure ES-1 Summary of boat level financial performance in the Spencer Gulf Prawn Fishery, 2021/22



Following a similar trend to each of the profitability measures, the estimated rate of return to total capital decreased overall from 2.3 per cent to 1.8 per cent between 2002/03 and 2021/22.

The fishery has experienced a cost-price squeeze over the past 20 years. The average real cost of catching Spencer Gulf Prawns was \$17.59/kg in 2021/22, 19 per cent higher than the 20-year average (\$14.73 in real terms). Comparatively, the average price received for Spencer Gulf Prawns in 2021/22 was \$21.20, 3 per cent lower than the average over the same period (\$21.90 in real terms), reducing the per kg profit for Prawn catch.

### Contribution to South Australian Economy

Fluctuations in total output and gross state product (GSP) impacts are generally related to changes in price and fishery GVP, however they have followed a more constant trend over the last 20 years than price and GVP. The total employment impact of the fishery has fluctuated over the 20 years but followed an increasing trend overall. In 2021/22, the estimated total contribution to GSP (directly and indirectly) was estimated to be \$82 million and the total employment impact was estimated to be 766 fte jobs. The Spencer Gulf Prawn Fishery has a higher employment benefit per \$1 million of GVP than the average across all fisheries with 26 total fte jobs per \$1 million of GVP. This is likely due to the nature of the supply chain, it is long and domestically focused, with a diverse range of processed products supplied to the retail sector and a high proportion of the product being supplied to the food service market.

### Net Economic Return

Net Economic Return (NER) is the return from a fishery after all costs have been met. It is equal to fishing revenue less fishing costs (cost of labour, capital including depreciation, materials and an allowance for “normal” profit). NER is maximised when economic efficiency is maximised.

Real NER generated by the fishery has fluctuated over the last 20 years, with no clear trend. NER improved slightly overall from -\$3.1 million in 2002/03 to -\$2.2 million in 2021/22, with a 20-year average of -\$1.3 million. This negative NER is a result of a period of below average catch and the rising cost of catching Prawns.

The value of licences is based on the market’s expectation of future NER. The return to the aggregate licence value improved overall from -3.8 per cent in 2002/03 to -1.3 per cent in 2021/22, which was only slightly lower than the 20-year average of -1.2 per cent. The overall increase is due to the slight increase in the NER generated by the fishery despite an increase in the aggregate value of licences (in real terms) since 2002/03.

### Social Indicators

Licence holders’ perceptions of the Spencer Gulf Prawn fishing industry and fishery outlook were positive, with between 94 and 81 per cent of licence holders either agreeing or strongly agreeing with a range of statements. The most highly agreed with statements included that *respondents enjoy being part of the Spencer Gulf Prawn Fishery*, that *being part of the Spencer Gulf Prawn Fishery is important to them*, that *most fishers comply with fishing rules and regulations*, and that *most commercial fishers fish responsibly*.

Licence holders were also asked questions about each management group in the fishery. Questions included how well management groups manage the fishery, and how easily respondents can understand and access the information management groups produce about the fishery. Fishers’ perceptions of the role of the Spencer Gulf & West Coast Prawn Fishermen’s Associations’ Management Committee were very positive and all survey respondents either agreed or strongly agreed with all statements. Perceptions of the Committee

at Sea were also positive, with 94 to 75 per cent of licence holders agreeing with the range of statements. Similarly, perceptions of PIRSA were positive overall, with 88 to 81 per cent of licence holders agreeing with the range of statements.

Fishers were asked to indicate their satisfaction with 7 aspects of fishing in the Spencer Gulf Prawn Fishery. Responses were positive overall, with 4 out of the 7 aspects receiving above a 94 per cent satisfaction level. The 4 aspects with the highest satisfaction were '*work life balance*' (100 per cent satisfaction level), '*being part of the South Australian fishing community*' (94 per cent satisfaction level), '*being part of the Spencer Gulf Prawn fishing community*' (94 per cent satisfaction level) and '*continuing a family tradition of fishing*' (94 per cent satisfaction level). The lowest rated component of satisfaction was '*spending time on the water*' (55 per cent satisfaction level).

Fishers were also asked about the equity of their treatment in the Spencer Gulf Prawn Fishery across various fishery aspects relative to other users of the resource. The responses were again mostly positive overall. Over 94 per cent of respondents felt that current access to fishing areas, gear and technique restrictions, expected contribution to management of fisheries resource, and the processes used to make decisions about fisheries management were fair. However, only 75 per cent of licence holders felt that the security of access to fishing areas was fair. Note that not all stakeholders of this community resource (recreation, tourism, etc.) were surveyed which is required for any objective analysis on perceptions of management and equity.

In 2022, most survey participants viewed their commercial fishing activities principally as a business, rather than a lifestyle. With respect to future intentions of staying in the Spencer Gulf Prawn Fishery, 63 per cent of survey participants indicated that they intend to keep fishing for as long as possible. A further 19 per cent of respondents indicated that they intend to continue fishing in the short-term future.

## 1. INTRODUCTION

Under the *Fisheries Management Act 2007*, all the major fisheries in South Australia (SA) operate in accordance with fishery management plans that determine the primary management objectives of the fishery. Economic performance indicators are a feature of these plans and annual reports on them are required for the Minister for Primary Industries and Regional Development to meet the obligations of section 7 of the *Fisheries Management Act 2007*. The *Management Plan for the South Australian Commercial Spencer Gulf Prawn Fishery* was published in October 2020 (PIRSA 2020).

This report is the twenty-fifth annual economic indicators report for the Spencer Gulf Prawn Fishery. The objective of this report, *Economic and Social Indicators for the Spencer Gulf Prawn Fishery 2021/22*, is to provide an update of the fishery's most recent economic and social performance based on the seventh licence holder survey undertaken in the fishery in 2022.

Financial performance indicators relate solely to the Spencer Gulf Prawn Fishery. The West Coast Prawn Fishery was excluded from the more recent surveys due to its small number of licences<sup>1</sup>.

The aim of this report is to present the performance indicators defined in the management plan for the fishery as well as to develop a consistent time series of economic information to aid management of the fishery in future years. The economic indicators detailed include:

- gross value of production (GVP) (catch and price)
- the cost of management of the fishery
- financial measures (income, costs, profit, and return on investment)
- economic contribution of the fishery, both local and state
- net economic return (NER)
- external factors that influence the economic condition of the fishery
- social indicators.

For purposes of comparison, summary economic indicators for all South Australian commercial fisheries, up to 2020/21, are presented in Appendix 2.

In 2014, the economic indicators surveys of commercial fisheries was extended to include the collection of social indicators. The results of the social indicators component of the most recent survey (2022) are presented in Section 5.

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<sup>1</sup> There are 3 licences in the West Coast Prawn Fishery.

## 2. METHOD OF ANALYSIS AND DEFINITION OF TERMS

### 2.1. Survey of Licence Holders, 2021/22

The questionnaire for the 2021/22 survey was based on the previous survey, conducted in 2019. It was drafted in consultation with the Spencer Gulf Prawn Fishery Executive Officer.

Development of the social indicator component of the questionnaire was based on a process recommended in the report *Managing the Social Dimensions of Fishing* (Triantafillos et al. 2014a, b). A workshop was conducted with the Spencer Gulf & West Coast Prawn Fishermen's Associations' Research Committee outline ten social objectives described in Triantafillos et al. (2014a, b). The Research Committee identified the most important social objectives, which were used as the basis for selecting questions to include in the questionnaire.

Licence holders were sent an introductory email from BDO EconSearch outlining the project and seeking their support. Telephone calls were then made by BDO EconSearch representatives to each licence holder seeking their participation in the survey. Completed questionnaires were received from a combination of methods including over the telephone and online. Responses were obtained from 16 owners (or representatives) of the fishery's licences, representing 18 of the 39 licences in the fishery (46 per cent).

### 2.2. Definition of Terms

**Beach price:** refers to the price received by commercial fishers at the "port level" for their catch, and is generally expressed in terms of \$/kg. Some processing costs are included in the beach price, as some processing (such as dipping, packing and freezing) occurs on the boat. Other processing costs are not included in the beach price, as processing operations are assumed to occur further along the value chain. The use of beach prices also removes the effect of transfer pricing by the firm if it is vertically integrated into the value chain.

**Boat Business Profit:** is defined as *GOS less Depreciation less Owner-operator and Unpaid Family Labour*. Boat Business Profit represents a more complete picture of the actual financial status of an individual firm, compared with GOS, which represents the cash in-cash out situation only.

**Boat Capital:** includes capital items that are required by the licence holder to earn the boat income. It includes boat hull, engine, electronics and other permanent fixtures and tender boats. Other capital items such as motor vehicles, sheds, cold-rooms, and jetty/moorings can be included to the extent that they are used in the fishing business. The fishing licence/permit value is included in total boat capital.

**Boat Cash Income:** is defined as *Gross Operating Surplus less imputed wages for owner-operator and unpaid family labour*.

**Boat Gross Margin:** is defined as *Total Boat Income less Total Boat Variable Costs*. This is a basic measure of profit which assumes that capital has no alternative use and that as fishing activity (nights fished) varies there is no change in capital or fixed costs.

**Cost of management services:** in a commercial fishery management services will generally include biological monitoring and reporting; policy, regulation and legislation development; compliance and enforcement services; licensing services; and research. Where a commercial fishery operates under full cost recovery, licence fees will be set to cover the cost of managing the fishery or at least the commercial sector's share of the resource.

In fisheries where there is full cost recovery, it can be assumed that the cost of providing these management services to the commercial sector will be equal to the gross receipts from licence fees in the fishery. With information on licence fee receipts, GVP, catch and the number of commercial fishers in the fishery, the following indicators can be readily calculated:

- aggregate licence fee receipts for the fishery (\$)
- licence fee/GVP (%)
- licence fee/catch (\$/kg)
- licence fee/licence holder (\$/licence holder).

**Depreciation:** Depreciation refers to the annual reduction in the value of boat capital due to general wear and tear or the reduction in value of an item over time.

**Gross Operating Surplus: (GOS)** is defined as *Total Boat Income* less *Total Boat Cash Costs* and is expressed in current dollar terms. GOS may be used interchangeably with the term Gross Boat Profit. A GOS value of zero represents a breakeven position for the business, where TBCC equals TBCR. If GOS is a negative value the firm is operating at a cash loss and if positive the firm is making a cash profit. GOS does not include a value for owner/operator wages, unpaid family work, or depreciation.

**Gross Value of Production (GVP):** refers to the value of the total annual catch for individual fisheries, fishing sectors or the fishing industry as a whole, and is measured in dollar terms. GVP, generally reported on an annual basis, is the quantity of catch for the year multiplied by the average monthly landed beach prices.

**Owner-operator and Unpaid Family Labour:** in many fishing businesses there is a component of labour that does not draw a direct wage or salary from the business. This will generally include owner/operator labour and often also include some unpaid family labour. The value of this labour needs to be accounted for which involves imputing a labour cost based on the amount of time and equivalent wages rate. In the above calculations this labour cost can be included simply as another cost so that Gross Operating Surplus takes account of this cost. Alternatively, it can be deducted from GOS to give a separate indicator called Boat Cash Income. Owner-operator and unpaid family labour is separated into variable labour (fishing and repairs and maintenance) and overhead labour (management and administration).

**Profit at Full Equity:** is calculated as *Boat Business Profit* plus *rent, interest and lease* payments. Profit at Full Equity represents the profitability of an individual licence holder, assuming the licence holder has full equity in the operation, i.e. there is no outstanding debt associated with the investment in boat capital. Profit at Full Equity is a useful absolute measure of the economic performance of fishing firms.

**Rate of Return to Capital:** is calculated as *Profit at Full Equity* divided by *Boat Capital* multiplied by 100. This measure is expressed in percentage terms and is calculated for an individual licence holder. It refers to the economic return to the total investment in capital items, and is a useful relative measure of the performance of individual firms. Rate of return to capital is useful to compare the performance of various licence holders, and to compare the performance of other types of operators, and with other industries.

**Total Boat Cash Costs (TBCC):** defined as *Total Boat Variable Costs* plus *Total Boat Fixed Costs*

**Total Boat Fixed Costs:** are costs that remain fixed regardless of the level of catch or the amount of time spent fishing. As such these costs, measured in current dollar terms, are likely to remain relatively constant from one year to the next. Examples of fixed cost include:

- insurance



- licence and industry fees
- office and business administration (communication, stationery, accountancy fees)
- interest on loan repayments and overdraft
- leasing.

**Total Boat Income (TBI):** refers to the cash receipts received by an individual firm and is expressed in dollar terms. Total boat income is calculated as catch (kg) multiplied by 'beach price' (\$/kg). Total boat income is the contribution of an individual licence holder to the GVP of a fishing sector or fishery.

**Total Boat Variable Costs:** are costs which are dependent upon the level of catch or, more commonly, the amount of time spent fishing. As catch or fishing time increases, variable costs also increase. Variable costs are measured in current dollar terms and include the following individual cost items:

- fuel, oil and grease for the boat (net of diesel fuel rebate)
- provisions
- crew payments
- fishing equipment, purchase and repairs (nets, lines, etc.).

## 3. ECONOMIC INDICATORS FOR THE SA SPENCER GULF PRAWN FISHERY

### 3.1. Economic Objectives of the SA Spencer Gulf Prawn Fishery

According to the *Management Plan for the South Australian Commercial Spencer Gulf Prawn Fishery* (PIRSA 2020), management of the fishery has a number of biological, economic, environmental and social objectives. In order to achieve these objectives, the management plan sets out specific biological, ecological, social and economic goals for the fishery. There are four key management goals for the Spencer Gulf Prawn Fishery:

1. Maintain ecologically sustainable Prawn biomass
2. Ensure optimum utilisation and equitable distribution
3. Minimise impacts on the ecosystems
4. Enable cost effective and participative management of the fishery.

The economic and social performance indicators and reference points of the Spencer Gulf Prawn Fishery, as described in the management plan, are summarised in Table 3-1. These are presented in the following sections.

Table 3-1 Economic and social objectives of the Spencer Gulf Prawn Fishery

Goal	Objectives	Management Strategies	Performance Indicator	Reference Point
2. Ensure optimal utilisation and equitable distribution.	2a. An economically efficient fleet without compromising sustainability objectives.	2ai. Harvest strategy allows commercial operators to maximise operational flexibility within sustainable limits.	Gross Value of Production (GVP)	GVP monitored regularly
		2aii. Economic performance of fishery assessed.	Return on Investment (ROI)	ROI monitored regularly
			Gross operating surplus (GOS)	GOS monitored regularly
			Economic Indicators report	Economic indicator report conducted regularly
			Number of FTEs directly and indirectly employed	Numbers of FTEs monitored when available

Indicators reported in economic reports.

Reference points that can be calculated from reported economic indicators

Source: PIRSA 2020

### 3.2. Catch and Gross Value of Production

The catch levels shown in Table 3-2 indicate that total catch in the Spencer Gulf Prawn Fishery has been within the range 1,372 tonnes to 2,361 tonnes over the period 2002/03 to 2021/22. However, from year to year the catch can be highly variable compared to other SA commercial fisheries. For example, a 25 per cent decrease in catch occurred between 2020/21 and 2021/22, resulting in a 20-year low of reported catch in 2021/22.

Table 3-2 illustrates the value of the Spencer Gulf Prawn Fishery between the period 2002/03 to 2021/22. In 2021/22, GVP was 30 per cent lower than the 20-year average (\$41.3 million in real terms). This was principally due to the lower catch (27 per cent lower than the 20-year average). Real GVP reached a 20-year low in 2019/20 primarily due to a decline in the real price for Prawns (34 per cent) from 2018/19. In 2020/21 GVP improved due to a 44 per cent increase in real price from 2019/20. This price remained stable in 2021/22, but the decline in catch resulted in a 23 per cent overall reduction in GVP between 2020/21 and 2021/22 (Table 3-2).

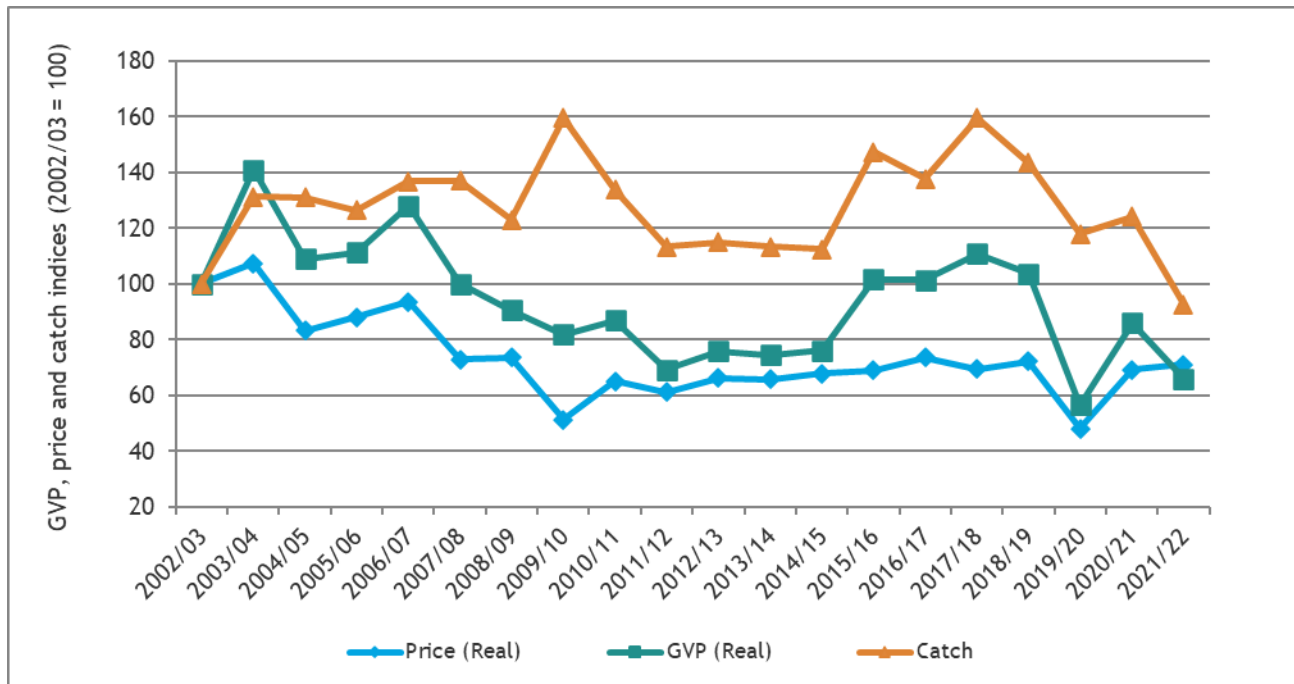
Table 3-2 Catch and value of catch of the Spencer Gulf Prawn Fishery, 2002/03 to 2021/22

	Catch (tonnes)	Value of catch (\$'000)	
		Nominal	Real (2021/22)
2002/03	1,479	27,681	44,128
2003/04	1,943	40,171	62,218
2004/05	1,939	31,759	48,119
2005/06	1,870	33,610	49,083
2006/07	2,024	39,386	56,530
2007/08	2,028	32,163	44,140
2008/09	1,821	29,549	39,941
2009/10	2,361	27,450	36,091
2010/11	1,979	30,335	38,394
2011/12	1,675	24,460	30,587
2012/13	1,699	27,361	33,513
2013/14	1,675	27,694	32,892
2014/15	1,664	28,663	33,628
2015/16	2,180	38,452	44,819
2016/17	2,038	39,020	44,773
2017/18	2,361	43,722	48,870
2018/19	2,121	41,493	45,726
2019/20	1,743	22,833	24,965
2020/21	1,837	35,653	37,923
2021/22	1,372	29,085	29,085

Source: SARDI Aquatic Sciences

Figure 3-1 illustrates the trends in catch, real price and real GVP in the Spencer Gulf Prawn Fishery over the last 20 years. Since 2002/03, real price has decreased by 29 per cent and catch has declined by 7 per cent, which has led to a 34 per cent decrease in real GVP over the same period. The average price of Spencer Gulf Prawns in 2021/22 (\$21.20/kg) was 3 per cent lower than the average real price across the 20-year period of \$21.90/kg.

Figure 3-1 GVP, price and catch indices for the Spencer Gulf Prawn Fishery <sup>a</sup>



<sup>a</sup> 2002/03 is the reference year against which all other years are compared.

Source: SARDI Aquatic Sciences

### 3.3. Cost of Management

Licence fees from Spencer Gulf Prawn Fishery licence holders are collected in accordance with the PIRSA Cost Recovery Policy and the Australian Government’s Cost Recovery Guidelines (July 2014). Accordingly, licence fees are set to cover the cost of managing the Spencer Gulf Prawn Fishery. For the purpose of this analysis, the cost of providing these management services has been assumed to be equal to the gross receipts from licence fees in the fishery (PIRSA, pers. comm.), although this excludes some known small subsidies, such as federal government grants for research and stock status assessments.

Management services include:

- annual reports on biological and economic indicators
- policy and management services
- regulatory/legislation and licensing services
- compliance services
- directorate services
- extension services
- research services (including the FRDC levy).

Table 3-3 shows actual licence fee receipts for the Spencer Gulf Prawn Fishery for the period 2002/03 to 2022/23. The cost of licence fees is driven by program indexation. PIRSA management fees increase according to Treasury's indexations, while SARDI indexes are costed according to a separate costing model. To maintain costs within Treasury's indexation rate, programs have been removed or modified. However, these changes have not impacted on the core services of the delivery of stock assessment science. There is also some small variability driven by the co-management costs collected through the licence fees PIRSA, pers. comm.).

Table 3-3 Costs of management in the Spencer Gulf Prawn Fishery, 2002/03 to 2022/23 <sup>a</sup>

	Licence Fee (\$'000)	GVP		Catch		Licences	
		Total GVP (\$'000)	Fee/ GVP (%)	Total Catch (tonnes)	Fee/ catch (\$/kg)	(No.)	Fee/ Licence (\$/Licence)
2002/03	1,069	44,128	2.4%	1,479	\$0.72	39	27,408
2003/04	1,167	62,218	1.9%	1,943	\$0.60	39	29,918
2004/05	1,112	48,119	2.3%	1,939	\$0.57	39	28,524
2005/06	1,173	49,083	2.4%	1,870	\$0.63	39	30,065
2006/07	1,290	56,530	2.3%	2,024	\$0.64	39	33,087
2007/08	1,389	44,140	3.1%	2,028	\$0.69	39	35,626
2008/09	1,302	39,941	3.3%	1,821	\$0.72	39	33,386
2009/10	1,205	36,091	3.3%	2,361	\$0.51	39	30,909
2010/11	1,166	38,394	3.0%	1,979	\$0.59	39	29,891
2011/12	1,152	30,587	3.8%	1,675	\$0.69	39	29,535
2012/13	1,217	33,513	3.6%	1,699	\$0.72	39	31,204
2013/14	1,198	32,892	3.6%	1,675	\$0.72	39	30,718
2014/15	1,232	33,628	3.7%	1,664	\$0.74	39	31,577
2015/16	1,043	44,819	2.3%	2,180	\$0.48	39	26,751
2016/17	1,200	44,773	2.7%	2,038	\$0.59	39	30,780
2017/18	1,217	48,870	2.5%	2,361	\$0.52	39	31,199
2018/19	1,261	45,726	2.8%	2,121	\$0.59	39	32,342
2019/20	1,205	24,965	4.8%	1,743	\$0.69	39	30,894
2020/21	1,122	37,923	3.0%	1,837	\$0.61	39	28,771
2021/22	967	29,085	3.3%	1,372	\$0.71	39	24,805
2022/23 <sup>b</sup>	1,054	n.a.	-	n.a.	-	39	27,035

<sup>a</sup> Licence fees and GVP are presented in real 2021/22 dollars. Nominal management costs are presented in Appendix 4.

<sup>b</sup> 2022/23 values have not been adjusted.

Source: PIRSA Fisheries and SARDI Aquatic Sciences

In real terms, licence fees in the Spencer Gulf Prawn Fishery have fluctuated over time but remained relatively stable. As the number of licence holders has not changed in the last 20 years, changes in fees per licence holder are directly linked to changes in total fees. Licence fees have varied at times due to additional programs coordinated through SARDI such as by-catch surveys beginning in 2006/05 and 2012/13 and juvenile prawn research commencing in 2013/14 (Spencer Gulf and West Coast Prawn Association pers. comm.).

In the Spencer Gulf Prawn Fishery aggregate licence fees reached a 20 year low in 2021/22. However, over the last 20 years GVP has fallen more significantly than licence fees. As a result of this, licence fees as a percentage of GVP increased from 2.4 to 3.3 per cent in 2021/22, and this was also above the 20-year period average (3.0 per cent).

### 3.4. Financial Performance Indicators

The major measures of the financial performance of the surveyed licences in the Spencer Gulf Prawn Fishery for the period 2019/20 to 2021/22 are shown in Table 3-4. Financial performance estimates for 2019/20 and 2020/21 are based on the 2019 licence holder survey. Financial performance estimates for 2021/22 are based on the 2022 licence holder survey. For comparison, financial performance estimates for earlier years (2002/03 to 2018/19) are provided in Appendix 3. All financial performance indicator tables are presented in nominal terms.

Given the sample size of 18 respondents, it was possible to divide the 2022 survey responses into four groups (quartiles) according to rate of return to total capital. The first quartile comprises the 25 per cent of boats with the lowest rate of return to capital and the fourth quartile includes the 25 per cent with the highest return to capital. This quartile analysis illustrates the variability in profitability in the fishery. The 2021/22 financial performance measures for 'return to capital' quartiles are detailed in Table 3-5.

#### Income

The average gross income per surveyed licence in the fishery was estimated to be \$812,000 in 2021/22, down 5 per cent from 2020/21 (\$859,000) (Table 3-4). Total recorded catch in the Spencer Gulf decreased by 25 per cent from 2020/21 to 2021/22 and real price increased by 3 per cent, resulting in GVP decreasing by 23 per cent over the same period.

Table 3-5 shows there is variability in average income per boat across the quartiles in the Spencer Gulf Prawn Fishery. The average income for boats in the first quartile was 17 per cent below the average for all boats, this group having the lowest average income (\$672,000). The second quartile was also 17 per cent below the average while the third quartile was 13 per cent above the average. The fourth quartile boats had the highest average income (\$992,000) being 22 per cent above the average for the whole fishery (Table 3-5).

Table 3-4 Financial performance in the Spencer Gulf Prawn Fishery, 2019/20 to 2021/22 (average per licence) <sup>a</sup>

	2019/20		2020/21		2021/22	
	Average per licence	Share of TBCC <sup>b</sup>	Average per licence	Share of TBCC <sup>b</sup>	Average per licence	Share of TBCC <sup>b</sup>
(1) Total Boat Gross Income	\$543,394		\$858,836		\$812,234	
Variable Costs						
Fuel	\$63,063	11%	\$80,931	11%	\$94,000	15%
Repairs & Maintenance <sup>c</sup>	\$73,292	13%	\$97,439	14%	\$79,700	13%
Refrigeration expenses	\$3,762	1%	\$5,001	1%	\$14,965	2%
Provisions	\$3,464	1%	\$4,605	1%	\$9,994	2%
Labour - paid	\$275,466	48%	\$361,846	51%	\$262,188	42%
(2) Labour - unpaid <sup>d</sup>	\$1,523	0%	\$2,001	0%	\$11,675	2%
Other	\$276	0%	\$367	0%	\$1,124	0%
(3) Total Variable Costs	\$420,846	73%	\$552,190	78%	\$473,645	77%
Fixed Costs						
Licence Fee	\$28,867	5%	\$27,634	4%	\$27,559	4%
Insurance	\$17,322	3%	\$20,831	3%	\$27,976	5%
(4) Interest	\$43,050	7%	\$38,018	5%	\$10,587	2%
(5) Labour - unpaid <sup>d</sup>	\$3,366	1%	\$3,419	0%	\$12,126	2%
(6) Leasing	\$3,436	1%	\$5,365	1%	\$0	0%
Legal & Accounting	\$4,739	1%	\$4,872	1%	\$12,641	2%
Telephone etc.	\$2,914	1%	\$2,995	0%	\$3,036	0%
Slipping, Mooring and Boat Survey	\$21,205	4%	\$21,804	3%	\$21,047	3%
Travel	\$554	0%	\$570	0%	\$1,302	0%
Office & Admin	\$29,726	5%	\$30,556	4%	\$28,985	5%
(7) Total Fixed Costs	\$155,178	27%	\$156,062	22%	\$145,259	23%
(8) Total Boat Cash Costs (3+7)	\$576,025	100%	\$708,252	100%	\$618,904	100%
Boat Gross Margin (1-3)	\$122,548		\$306,646		\$338,589	
(9) Total Unpaid Labour (2+5)	\$4,890		\$5,420		\$23,800	
Gross Operating Surplus (1-8+9)	-\$27,741		\$156,004		\$217,131	
(10) Boat Cash Income (1-8)	-\$32,631		\$150,584		\$193,330	
(11) Depreciation	\$109,894		\$110,310		\$96,232	
(12) Boat Business Profit (10-11)	-\$142,524		\$40,274		\$97,098	
(13) Profit at Full Equity (12+4+6)	-\$96,039		\$83,656		\$107,685	
Boat Capital						
(14) Fishing Gear & Equip	\$1,430,122		\$1,435,546		\$1,770,638	
Licence Value	\$3,426,004		\$4,198,095		\$4,300,000	
(15) Total Boat Capital	\$4,856,126		\$5,633,641		\$6,070,638	
Rate of Return on Fishing Gear & Equip (13/14*100)	-6.7%		5.8%		6.1%	
Rate of Return on Total Boat Capital (13/15*100)	-2.0%		1.5%		1.8%	

<sup>a</sup> Financial performance estimates for the years 2019/20 and 2020/21 are based on the 2019 licence holder survey. Financial performance estimates for the year 2021/22 are based on the 2022 licence holder survey.

<sup>b</sup> Total boat cash costs.

<sup>c</sup> Repairs and maintenance costs have been classified as a variable cost although it is noted that some of these costs may be fixed (e.g. regulated maintenance).

<sup>d</sup> Unpaid labour was divided between variable (time spent fishing and on repairs and maintenance) and fixed (management and administrative duties) based on survey responses.

Source: BDO EconSearch analysis



**Table 3-5 Financial performance in the Spencer Gulf Prawn Fishery, by return to capital quartile, 2021/22 (average per licence)**

	Average per boat				
	Lowest 25%	Second Quartile	Third Quartile	Highest 25%	All Boats
(1) <b>Total Boat Gross Income</b>	\$671,930	\$674,448	\$918,455	\$991,995	\$812,234
<b>Variable Costs</b>					
Fuel	\$100,750	\$85,200	\$110,200	\$78,000	\$94,000
Repairs & Maintenance <sup>a</sup>	\$132,000	\$37,980	\$96,540	\$58,500	\$79,700
Refrigeration expenses	\$42,500	\$5,780	\$5,193	\$11,125	\$14,965
Provisions	\$8,125	\$8,800	\$10,679	\$12,500	\$9,994
Labour - paid	\$293,250	\$243,640	\$304,438	\$201,500	\$262,188
(2) Labour - unpaid <sup>b</sup>	\$20,928	\$349	\$15,975	\$11,203	\$11,675
Other	\$1,125	\$1,240	\$1,325	\$725	\$1,124
(3) <b>Total Variable Costs</b>	<b>\$598,678</b>	<b>\$382,989</b>	<b>\$544,349</b>	<b>\$373,553</b>	<b>\$473,645</b>
<b>Fixed Costs</b>					
Licence Fee	\$25,875	\$29,600	\$27,912	\$26,250	\$27,559
Insurance	\$32,750	\$29,400	\$29,395	\$19,650	\$27,976
(4) Interest	\$37,500	\$96	\$7,017	\$1,250	\$10,587
(5) Labour - unpaid <sup>b</sup>	\$26,160	\$1,395	\$8,022	\$16,635	\$12,126
(6) Leasing	\$0	\$0	\$0	\$0	\$0
Legal & Accounting	\$14,750	\$17,040	\$9,268	\$9,250	\$12,641
Telephone etc.	\$4,500	\$1,882	\$3,807	\$2,050	\$3,036
Slipping, Mooring and Boat Survey	\$27,750	\$15,800	\$17,629	\$25,175	\$21,047
Travel	\$1,750	\$725	\$1,360	\$1,500	\$1,302
Office & Admin	\$17,325	\$68,289	\$16,357	\$7,300	\$28,985
(7) <b>Total Fixed Costs</b>	<b>\$188,360</b>	<b>\$164,227</b>	<b>\$120,769</b>	<b>\$109,060</b>	<b>\$145,259</b>
(8) <b>Total Boat Cash Costs (3+7)</b>	<b>\$787,038</b>	<b>\$547,216</b>	<b>\$665,118</b>	<b>\$482,612</b>	<b>\$618,904</b>
<b>Boat Gross Margin (1-3)</b>	<b>\$73,252</b>	<b>\$291,459</b>	<b>\$374,106</b>	<b>\$618,442</b>	<b>\$338,589</b>
(9) <b>Total Unpaid Labour (2+5)</b>	<b>\$47,088</b>	<b>\$1,744</b>	<b>\$23,997</b>	<b>\$27,837</b>	<b>\$23,800</b>
<b>Gross Operating Surplus (1-8+9)</b>	<b>-\$68,020</b>	<b>\$128,976</b>	<b>\$277,334</b>	<b>\$537,220</b>	<b>\$217,131</b>
(10) <b>Boat Cash Income (1-8)</b>	<b>-\$115,108</b>	<b>\$127,232</b>	<b>\$253,337</b>	<b>\$509,383</b>	<b>\$193,330</b>
(11) <b>Depreciation</b>	<b>\$153,785</b>	<b>\$50,965</b>	<b>\$108,018</b>	<b>\$80,531</b>	<b>\$96,232</b>
(12) <b>Boat Business Profit (10-11)</b>	<b>-\$268,893</b>	<b>\$76,267</b>	<b>\$145,319</b>	<b>\$428,852</b>	<b>\$97,098</b>
(13) <b>Profit at Full Equity (12+4+6)</b>	<b>-\$231,393</b>	<b>\$76,363</b>	<b>\$152,336</b>	<b>\$430,102</b>	<b>\$107,685</b>
<b>Boat Capital</b>					
(14) Fishing Gear & Equip	\$2,278,438	\$1,186,798	\$1,803,749	\$1,951,250	\$1,770,638
Licence Value	\$4,450,000	\$4,800,000	\$3,900,000	\$4,025,000	\$4,300,000
(15) <b>Total Boat Capital</b>	<b>\$6,728,438</b>	<b>\$5,986,798</b>	<b>\$5,703,749</b>	<b>\$5,976,250</b>	<b>\$6,070,638</b>
<b>Rate of Return on Fishing Gear &amp; Equip (13/14*100)</b>	<b>-10.2%</b>	<b>6.4%</b>	<b>8.4%</b>	<b>22.0%</b>	<b>6.1%</b>
<b>Rate of Return on Total Boat Capital (13/15*100)</b>	<b>-3.4%</b>	<b>1.3%</b>	<b>2.7%</b>	<b>7.2%</b>	<b>1.8%</b>

<sup>a</sup> Repairs and maintenance costs have been classified as a variable cost although it is noted that some of these costs may be fixed (e.g. regulated maintenance).

<sup>b</sup> Unpaid labour was divided between variable (time spent fishing and on repairs and maintenance) and fixed (management and administrative duties) based on survey responses.

Source: BDO EconSearch analysis

## Costs

Table 3-4 shows total cash costs separated into variable and fixed costs. Variable costs (77 per cent of total boat cash costs in 2021/22) represented a significantly greater proportion of total cash costs than fixed costs (23 per cent). It was estimated that average total boat cash costs decreased by 13 per cent between 2020/21 and 2021/22. This decrease was due to the 14 per cent decline in variable costs and 7 per cent decline in fixed costs. The decrease in variable costs was partly attributable to an 8 per cent decrease in the number of nights fished between 2020/21 and 2021/22.

Total boat cash costs in the first quartile were the highest of all the quartiles, 27 per cent above average boat cash costs for the fishery as a whole. Interestingly, average boat cash costs were lowest in the fourth quartile (22 per cent lower than the fishery as a whole) as a result of lower labour costs, insurance expenses, fuel costs and general office and admin costs (such as training) (Table 3-5).

In 2021/22, 46 per cent of the total boat cash costs were attributable to labour costs, by far the biggest cost item. The labour costs reported in Table 3-4 are comprised of payments to licence owners, crew and others employed in the operation of Spencer Gulf Prawn fishing businesses. An increased amount of imputed unpaid labour was reported as part of this, almost \$24,000 in 2021/22. This was a significant increase on the imputed unpaid labour reported in 2020/21 (\$5,000). Comparatively, paid labour decreased 28 per cent between years, indicating a recent shift from paid labour to unpaid labour in the fishery. This is likely caused by skippers taking on additional workload due to it becoming increasingly difficult to keep crew engaged prior to or post a fishing trip as they are committed to other employment. Skippers are taking on traditional crew tasks to help retain crew staff as the fishery is competing with other industries to retain employees (Spencer Gulf and West Coast Prawn Association pers. comm.). The other significant cash costs were fuel (15 per cent) and repairs and maintenance (13 per cent) (Table 3-4).

## Cash income and profit

The separation of variable and fixed costs from total cash costs enables the calculation of boat gross margin (total boat income less total boat variable costs) as a basic measure of profit (assuming that capital has no alternative use and that as fishing activity varies there is no change in capital or fixed costs). In 2021/22, boat gross margin increased 10 per cent from the previous year, reflecting the decrease in variable costs and despite the decline in total boat gross income (Table 3-4).

Gross operating surplus (GOS) was calculated as income less total boat cash costs, excluding imputed wages for operator and family members as a cost item. The average GOS of all licences in 2021/22 was estimated to be around \$217,000, a 39 per cent increase from 2020/21 (\$156,000). Boat cash income is measured as gross operating surplus with imputed wages (unpaid labour) included as cash costs. Average boat cash income in 2021/22 was estimated to be around \$193,000, a 28 per cent increase from 2020/21 (\$151,000) (Table 3-4).

Gross operating surplus and boat business profit give an indication of the capacity of the operator to remain in the fishery in the short to medium term. In 2021/22, the average boat business profit was approximately \$97,000, more than double the estimate in 2020/21 (\$40,000) (Table 3-4). This was due to the increase in boat cash income and the 13 per cent decline in depreciation over the same period.

Profit at full equity is a measure of the profitability of an individual licence holder, assuming the licence holder has full equity in the operation. It is a useful absolute measure of the economic performance of fishing firms. Profit at full equity in 2021/22 (\$108,000 per boat) increased 29 per cent from an estimated \$84,000 in 2020/21 (Table 3-4).

Average profit at full equity was only negative in the first quartile. Total boat cash costs (27 per cent higher in the first quartile compared to the fishery as a whole), total boat gross income (17 per cent lower) and depreciation (60 per cent higher) appeared to be significant determinants of profitability for boats in the fishery (Table 3-5).

### Return to capital

There are a number of interpretations of the concept of rate of return to total capital. For the purpose of this analysis it is appropriate to consider the capital as the investment employed by an average licence holder. Capital includes boats, licence/quota, fishing gear, sheds, vehicles and other capital items used as part of the fishing enterprise. It does not include working capital or capital associated with other businesses operated by the licence holder. Additionally, it does not include any capital associated with onshore processing facilities owned and operated by the licence holder. The rate of return to total capital has been calculated as the net profit after depreciation as a percentage of the total capital employed.

The average capital value in fishing gear and licence in the Spencer Gulf Prawn Fishery in 2021/22 was estimated to be almost \$6.1 million per licence. This included the licence holder's estimate of the value of their licence (\$4.3 million) and estimated investment in boats and fishing gear (\$1.8 million per licence) (Table 3-4).

The average rate of return to total capital for the fishery is reported in Table 3-4. The rate of return to boat capital (i.e. fishing gear and equipment) was estimated to be 6.1 per cent and the rate of return to total capital was estimated to average 1.8 per cent in 2021/22. The average rate of return to total capital was estimated to be -3.4 per cent in the first quartile and 7.2 per cent in the fourth quartile (Table 3-5). The low rate of return to total capital is a function of the valuation of licences by licence holders. It does not fully reflect profitability of fishing firms or performance of the fishery.

### Licence values

The value of licences represents a significant part of the capital used by each licence holder in the fishery. Based on information provided by licence holders in the 2022 survey, the value per licence in the fishery was \$4.3 million or \$168 million for all 39 licences in 2021/22. There was a large degree of variability in licence holder estimates of licence value. Estimates ranged from \$2.0 million to \$6.0 million per licence and some licence holders suggested that due to the small number of licences sold it is difficult to value. It is worth noting that the value of these licences would ideally be revealed through an active market with transparent and open reporting of trades. As this was not available, the survey of operators provided an alternative method of valuing licences.

Since there have been limited transfers of licences in recent years and the current market value of licences is uncertain, a sensitivity analysis was undertaken to estimate the rate of return to capital for a range of licence values. The results are presented in Table 3-6.

**Table 3-6** Sensitivity of rate of return to changes in licence value, 2021/22 <sup>a</sup>

Licence Values	\$2,150,000	\$4,300,000	\$6,450,000
Rate of Return to Total Capital (%)	2.7%	1.8%	1.3%

<sup>a</sup> Based on the licence value estimated for 2021/22 and values 50 per cent above and below this estimate.

Source: BDO EconSearch analysis

Based on the costs and returns shown for the year 2021/22 in Table 3-6, a licence value of \$2.15 million (approximately 50 per cent below the licence value estimated for 2021/22) would mean an annual return to the total asset of 2.7 per cent, while a licence value of \$6.45 million (approximately 50 per cent above the licence value estimated for 2021/22) would mean an annual return to the total asset of 1.3 per cent (Table 3-6).

### 3.5. State and Regional Economic Contribution

Estimates of the economic impact of the Spencer Gulf Prawn fishing industry on the South Australian and regional (Eyre and Western<sup>2</sup>) economies in 2021/22 are outlined below.

#### 3.5.1. Measuring direct and flow-on effects

Estimates of the direct economic impact of the Spencer Gulf Prawn Fishery are consistent with the method employed in PIRSA's Value-added ScoreCard, 2021/22.

The following stages in the marketing chain have, therefore, been included in the quantifiable economic impact:

- the landed beach value of production
- downstream impacts, including the:
  - net value of local (state and regional) processing
  - value of local transport services at all stages of the marketing chain
  - net value of local retail and food service (e.g. hotels & restaurants) trade.

Each of these activities generates flow-on effects to other sectors through purchases of inputs and the employment of labour. These flow-on effects have been estimated using input-output analysis. Input-output analysis is widely used in economic impact analysis and is a practical method for measuring economic impacts at regional and state levels.

Economic impacts at the state and regional levels were based on models for the state as a whole and for the Eyre and Western State Government region, prepared for the Department of Premier and Cabinet (BDO EconSearch 2021).

In order to compile a representative cost structure for the fishing sector, costs per licence were derived from data provided by operators in the fishery in the financial survey for 2021/22. On an item-by-item basis, the expenditures were allocated between those occurring in the Eyre and Western region, those occurring in South Australia and those goods and services imported from outside the state.

Estimates of the net value of local (i.e. regional and state) processing margins and retail and food service trade margins were derived from PIRSA's value-added ScoreCard (Seafood Scorecard, 2021/22). Estimates of the net value of local transport margins and capital expenditure per licence holder were derived from the survey of licence holders.

Economic impacts have been specified in terms of the following economic indicators:

- value of output

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<sup>2</sup> The Eyre and Western region is consistent with the SA Government Regions, as defined by the Department of Planning and Local Government.

- employment
- household income
- contribution to gross state or regional product.

**Value of output** is a measure of the gross revenue of goods and services produced by commercial organisations plus gross expenditure by government agencies. This indicator needs to be used with care as it includes elements of double counting.

**Employment** is a measure of the number of working proprietors, managers, directors and other employees, in terms of the number of full-time equivalent jobs.

**Household income** is a component of Gross State Product (GSP) and Gross Regional Product (GRP) and is a measure of wages and salaries, drawings by owner operators and other payments to labour including overtime payments and income tax, but excluding payroll tax.

**Contribution to GSP or GRP** is a measure of the net contribution of an activity to the state/regional economy. Contribution to GSP or GRP is measured as value of output less the cost of goods and services (including imports) used in producing the output. It can also be measured as household income plus other value added (gross operating surplus and all taxes, less subsidies). It represents payments to the primary inputs of production (labour, capital and land). Using contribution to GSP or GRP as a measure of economic impact avoids the problem of double counting that may arise from using value of output for this purpose.

### 3.5.2. Economic contributions at the state and regional levels

Estimates of the economic impact generated in 2021/22 by the Spencer Gulf Prawn fishing industry in South Australia and the Eyre and Western region are outlined in Table 3-7 and Table 3-8, respectively.

#### Value of output

The value of output generated directly in South Australia and the Eyre and Western region by Spencer Gulf Prawn fishing enterprises summed to \$29.1 million in 2021/22 (Table 3-7 and Table 3-8), while output generated in South Australia by associated downstream activities (processing, transport, retail/food services and capital expenditure) summed to \$32.4 million (\$4.2 million in the Eyre and Western region, Table 3-8).

Flow-ons to other sectors of the state economy added another \$82.5 million in output (\$21.7 million in the regional economy). The sectors most affected were the business services, trade, manufacturing and transport sectors. The total output impact in SA (direct plus indirect) was estimated to be \$144.0 million in 2021/22 (\$55.0 million in the regional economy).

#### Employment and household income

In 2021/22, the Spencer Gulf Prawn Fishery was responsible for the direct employment of around 157 full-time equivalents (fte) and downstream activities created employment of around 260 fte jobs state-wide (31 fte jobs in the regional economy). Flow-on business activity was estimated to generate a further 349 fte jobs state-wide (97 jobs regionally). These state-wide flow-on jobs were concentrated in the business services (77), trade (62), manufacturing (29) and transport (20) sectors. The total employment impact in SA was estimated to be 766 fte jobs (285 fte jobs regionally). The Spencer Gulf Prawn Fishery has one of the highest employment benefit per \$1 million of GVP of commercial fisheries with 26 total fte jobs per \$1 million of GVP.

Personal income of \$11.2 million was earned in the fishing sector (wages of employees and estimated drawings by owner/operators) and \$13.7 million in downstream activities in SA. An additional \$25.7 million was earned by wage earners in other businesses in the state as a result of fishing and associated downstream activities. The total household income impact was \$50.6 million in SA (\$19.4 million in the Eyre and Western region).

### Contribution to GSP and GRP

As noted above, contribution to GSP or GRP is measured as value of output less the cost of goods and services (including imports) used in producing the output. In 2021/22, total Spencer Gulf Prawn Fishery related contribution to GSP in South Australia was \$81.7 million (\$32.0 million in the Eyre and Western region), \$17.3 million generated by fishing directly, \$18.7 million generated by downstream activities and \$45.7 million generated in other sectors of the state economy.

**Table 3-7 The economic contribution of the Spencer Gulf Prawn fishing industry in South Australia, 2021/22**

Sector	Output		Employment <sup>a</sup>		Household Income		Contribution to GSP	
	(\$m)	%	(fte jobs)	%	(\$m)	%	(\$m)	%
<b>Direct effects</b>								
Fishing	29.1	20.2%	157	20.5%	11.2	22.1%	17.3	21.2%
Processing	0.6	0.4%	4	0.5%	0.2	0.4%	0.4	0.5%
Transport	0.0	0.0%	0	0.0%	0.0	0.0%	0.0	0.0%
Retail	20.2	14.1%	151	19.7%	9.0	17.7%	11.9	14.5%
Food services	10.4	7.2%	99	12.9%	4.1	8.1%	5.8	7.1%
Capital expenditure <sup>b</sup>	1.2	0.8%	7	0.9%	0.4	0.9%	0.6	0.7%
<b>Total Direct <sup>c</sup></b>	<b>61.5</b>	<b>42.7%</b>	<b>417</b>	<b>54.4%</b>	<b>24.9</b>	<b>49.2%</b>	<b>35.9</b>	<b>44.0%</b>
<b>Flow-on effects</b>								
Trade	10.0	7.0%	62	8.1%	4.0	8.0%	5.8	7.1%
Manufacturing	10.8	7.5%	29	3.8%	2.0	4.0%	3.2	3.9%
Business Services	13.0	9.0%	77	10.1%	6.2	12.2%	7.1	8.7%
Transport	5.4	3.7%	20	2.6%	1.5	3.0%	2.4	2.9%
Other Sectors	43.3	30.1%	162	21.1%	11.9	23.5%	27.2	33.4%
<b>Total Flow-on <sup>c</sup></b>	<b>82.5</b>	<b>57.3%</b>	<b>349</b>	<b>45.6%</b>	<b>25.7</b>	<b>50.8%</b>	<b>45.7</b>	<b>56.0%</b>
<b>Total <sup>c</sup></b>	<b>144.0</b>	<b>100%</b>	<b>766</b>	<b>100%</b>	<b>50.6</b>	<b>100%</b>	<b>81.7</b>	<b>100%</b>
Total/Direct	2.3	-	1.8	-	2.0	-	2.3	-
Total/Tonne	\$104,900	-	0.56	-	\$36,800	-	\$59,500	-

<sup>a</sup> Full-time equivalent jobs. Direct employment in the fishing sector was comprised of 103 full-time and 108 part-time jobs, that is, 211 jobs in aggregate, which was estimated to be equal to 157 fte jobs.

<sup>b</sup> Capital expenditure includes fishing related expenditure (boats, fishing gear and equipment, sheds and buildings, motor vehicles and other equipment) and processing relating expenditure (sheds, buildings and freezers).

<sup>c</sup> Totals may not sum due to rounding.

Source: BDO EconSearch analysis

**Table 3-8 The economic contribution of the Spencer Gulf Prawn fishing industry in the Eyre and Western region, 2021/22**

Sector	Output		Employment <sup>a</sup>		Household Income		Contribution to GRP	
	(\$m)	%	(fte jobs)	%	(\$m)	%	(\$m)	%
<b>Direct effects</b>								
Fishing	29.1	52.9%	157	55.1%	11.2	57.6%	17.1	53.4%
Processing	0.5	1.0%	3	1.2%	0.2	0.9%	0.4	1.3%
Transport	0.0	0.0%	0	0.0%	0.0	0.0%	0.0	0.0%
Retail	2.0	3.7%	15	5.4%	0.9	4.7%	1.2	3.7%
Food services	1.0	1.9%	10	3.3%	0.4	1.9%	0.6	1.8%
Capital expenditure <sup>b</sup>	0.6	1.1%	3	0.9%	0.0	0.2%	0.1	0.2%
<b>Total Direct <sup>c</sup></b>	<b>33.3</b>	<b>60.6%</b>	<b>188</b>	<b>65.9%</b>	<b>12.7</b>	<b>65.4%</b>	<b>19.3</b>	<b>60.4%</b>
<b>Flow-on effects</b>								
Trade	3.5	6.4%	23	7.9%	1.4	7.4%	2.1	6.4%
Manufacturing	1.0	1.7%	3	1.1%	0.2	1.1%	0.3	0.9%
Business Services	2.4	4.4%	13	4.6%	1.1	5.6%	1.3	4.0%
Transport	1.9	3.4%	6	2.2%	0.5	2.5%	0.9	2.7%
Other Sectors	12.9	23.4%	52	18.3%	3.5	18.0%	8.2	25.5%
<b>Total Flow-on <sup>c</sup></b>	<b>21.7</b>	<b>39.4%</b>	<b>97</b>	<b>34.1%</b>	<b>6.7</b>	<b>34.6%</b>	<b>12.7</b>	<b>39.6%</b>
<b>Total <sup>c</sup></b>	<b>55.0</b>	<b>100%</b>	<b>285</b>	<b>100%</b>	<b>19.4</b>	<b>100%</b>	<b>32.0</b>	<b>100%</b>
Total/Direct	1.7	-	1.5	-	1.5	-	1.7	-
Total/Tonne	\$40,100	-	0.21	-	\$14,100	-	\$23,300	-

<sup>a</sup> Full-time equivalent jobs. Direct employment in the fishing sector was comprised of 103 full-time and 108 part-time jobs, that is, 211 jobs in aggregate, which was estimated to be equal to 157 fte jobs.

<sup>b</sup> Capital expenditure includes fishing related expenditure (boats, fishing gear and equipment, sheds and buildings, motor vehicles and other equipment) and processing relating expenditure (sheds, buildings and freezers).

<sup>c</sup> Totals may not sum due to rounding.

Source: BDO EconSearch analysis

### Total impacts over time

Figure 3-2 and Figure 3-3 illustrate the total economic impact (direct plus flow-on effects) of the fishery on the SA economy for the 20 years, 2002/03 to 2021/22. Estimates of economic impact are expressed in 2021/22 dollars. Adelaide CPI was used to adjust for inflation (ABS 2022).

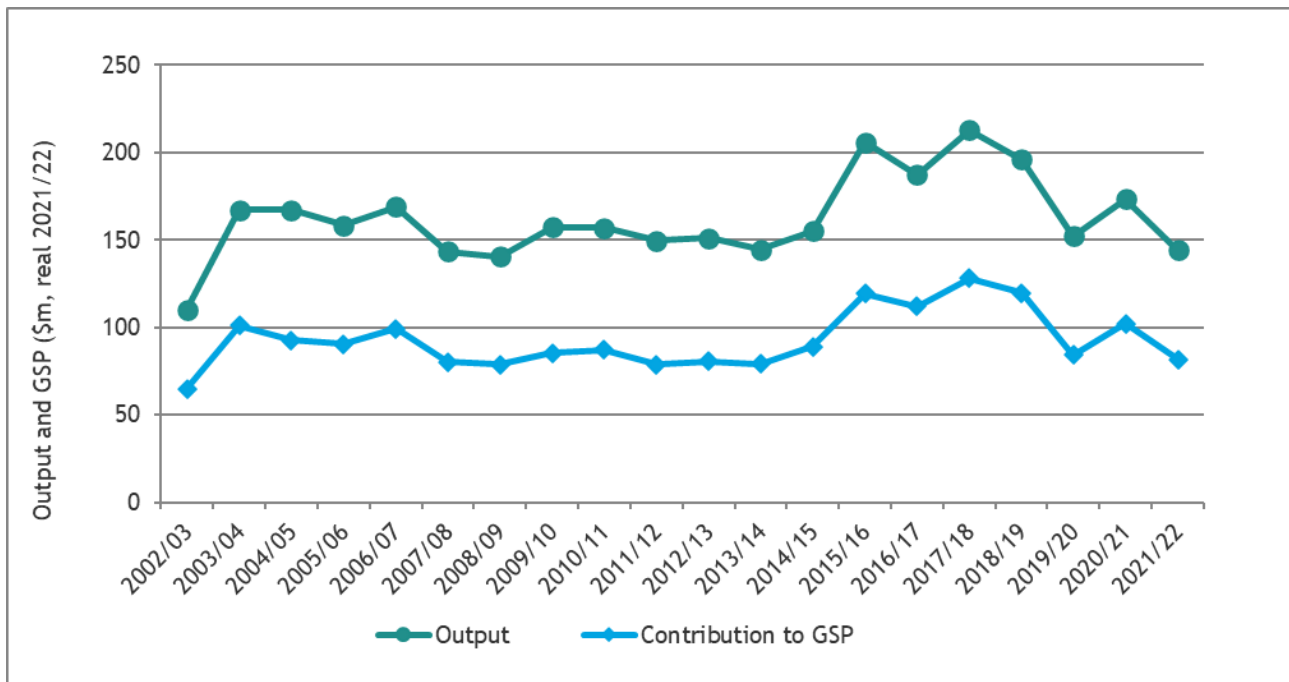
Estimates of economic impact for 2002/03 do not include the impact of local retail and food service trade, however these effects have been included in subsequent years. Prior to 2012/13 estimates include the impact of the West Coast Prawn Fishery as well as the Spencer Gulf Prawn Fishery. From 2012/13 impacts are calculated for the Spencer Gulf Prawn Fishery only with the exception of 2016/17 which included the West Coast Prawn Fishery.

The indicators from 2004/05 and 2013/14 have been revised to incorporate year-to-year revisions in the margins earned by downstream enterprises associated with the Spencer Gulf Prawn Fishery, namely the processing, retail and food service sectors. While this has revised upwards the estimates previously reported in the Spencer Gulf Prawn Fishery Economic Indicator reports (BDO EconSearch 2022a), there has been no revision of the estimated direct impact generated by the Spencer Gulf Prawn Fishing across this period.

As economic impact estimates for the years 2002/03 to 2021/22 are based on different survey samples and techniques, some of the differences between years is, therefore, attributable to sampling variability. Care should be taken when using value of output as a measure of economic impact as it includes elements of double counting. Using contribution to GSP is the preferred measure of net contribution to the SA economy.

The change in output and GSP impacts are closely related to changes in the GVP for the fishery (Figure 3-2). Both measures show an upward trend overall between 2002/03 and 2017/18, before falling through to 2021/22. The significant increase in all four indicators between 2015/16 and 2018/19 is due in part to the large increase in fishery income and variable costs and in part a result of survey sampling variability. The decline between 2018/19 and 2021/22 is due to the decrease in fishery costs and income. Employment and household income both show an upward trend overall between 2002/03 and 2018/19 before declining through to 2021/22 (Figure 3-3).

Figure 3-2 Total gross state product and output impact of the Spencer Gulf Prawn Fishery on the South Australian economy, 2002/03 to 2021/22 <sup>a</sup>.

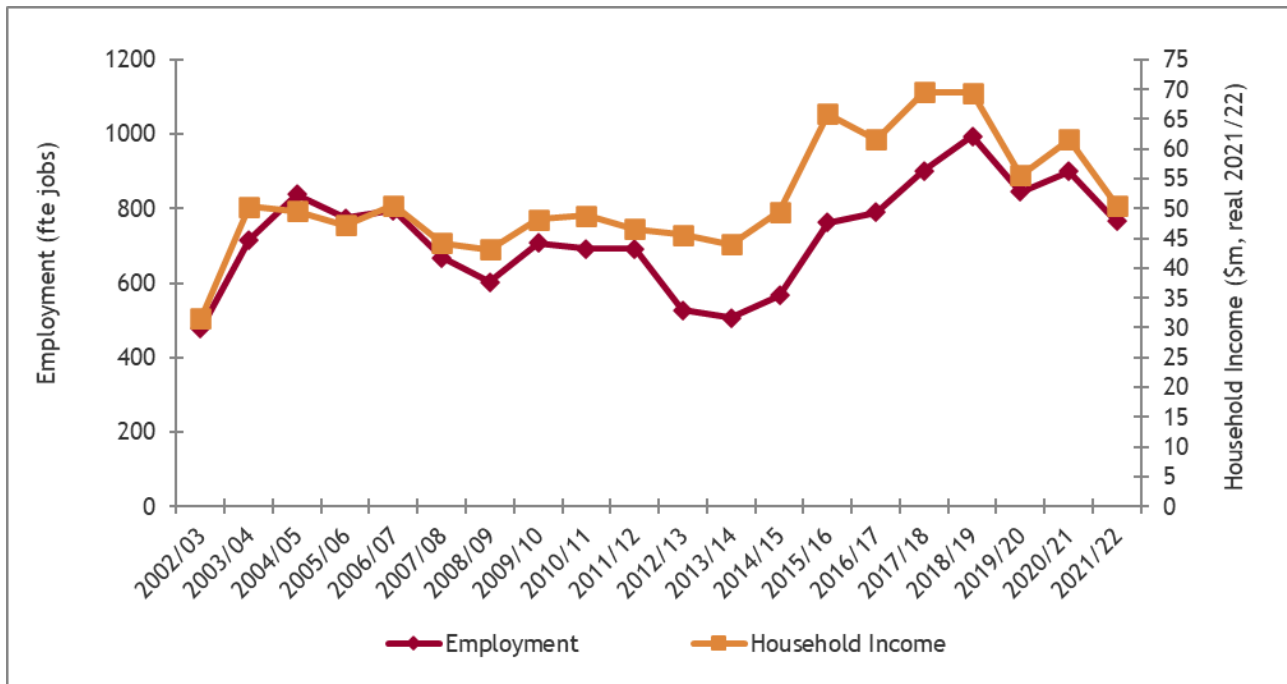


<sup>a</sup> Monetary values have been converted to 2021/22 dollars using the Adelaide CPI (ABS 2022).

Source: BDO EconSearch (2022a) and BDO EconSearch analysis



Figure 3-3 Total employment and household income impact of the Spencer Gulf Prawn Fishery on the South Australian economy, 2002/03 to 2021/22 <sup>a, b</sup>



<sup>a</sup> See note for Figure 3-2

<sup>b</sup> Employment estimates for 2018/19, 2019/20, and 2020/21 have been revised using updated information received in 2021/22.

Source: BDO EconSearch (2022a) and BDO EconSearch analysis

### 3.6. Net Economic Return

Net Economic Return (NER) is the return from a fishery after all costs have been met. It is equal to fishing revenue less fishing costs (cost of labour, capital including depreciation, materials and an allowance for “normal” profit). NER is maximised when economic efficiency is maximised. NER<sup>3</sup> can also be defined as the difference between the price of a good produced using a natural resource and the unit costs of turning that natural resource into the good. In this case the natural resource is the Spencer Gulf Prawn Fishery and the good produced is the landed Prawn.

The unit costs or long term costs all need to be covered if the licence holder is to remain in the fishery. Otherwise the fisher needs to accept a lower payment for labour and return on capital than they could get elsewhere. These long-term costs include direct operating costs such as fuel, labour (including the opportunity cost of a self-employed fisher’s own labour), overheads such as administration and licence fees, and the cost of capital invested in the boat and gear (excluding licence). Capital cost includes depreciation

<sup>3</sup> Net Economic Return (NER) or economic rent is comprised of three types of rent: entrepreneurial rent, quasi-rent and resource rent. As in any business some operators are more skilful than others and will therefore earn more profit. These profits, which are one component of NER, are entrepreneurial rents. In the short-term fishers may earn large surpluses over costs, which may provide prima facie evidence of substantial resource rents. However, there are some circumstances where such surpluses can occur but they are not true rents. These are referred to as quasi-rents. One example is where a fishery is developing or recovering and there may be under-investment in the fishery. Another example is where there is a short-term but unsustainable increase in price due to, for example, exchange rate fluctuations. However, some profits will be obtained because the natural resource being used (i.e. the fishery) has a value. These profits are described as resource rents and are also a component of NER.

and the opportunity cost of the capital applied to the fishery. The opportunity cost is equivalent to what the fisher's investment could have earned in the next best alternative use.

Commercial fishing operations in Australia are not risk free. Returns can be impacted both positively and negatively by factors such as natural events, changes in market conditions, disease, access to the resource and management regulations. Determining the opportunity cost of capital involves an assessment of the degree of financial risk involved in the activity. For a risk-free operation, an appropriate opportunity cost of capital might be the long-term real rate of return on government bonds. The greater the risks involved, the greater is the necessary return on capital to justify the investment in that particular activity.

For this analysis an opportunity cost of capital of 10 per cent has been used with sensitivity analysis at 5 per cent. In the case of the Spencer Gulf Prawn Fishery, there is evidence that a 5 per cent risk premium (a component of the opportunity cost of capital) may be too high. The evidence includes the existence of local markets (which are less vulnerable to exchange rate fluctuations). There is also evidence that the opportunity cost of labour (used to calculate the total value of unpaid labour) may be overestimated in the Spencer Gulf Prawn Fishery as the average length of licence ownership was estimated at 25 years in the 2022 survey. Long-term ownership can create a barrier to exit and therefore licence holders could have a lower opportunity cost for time spent fishing.

What remains after the value of these inputs (labour, capital, materials and services) has been netted out is the value of the natural resource itself. The NER generated in the Spencer Gulf Prawn Fishery was estimated to be -\$2.2 million in 2021/22, a 16 per cent decline from -\$1.9 million in 2020/21 (Table 3-9). This is attributable to the decrease in gross income as a result of the decline in catch in 2021/22.

The longer than usual gap between survey years (5 years instead of the usual 3 years) is a major reason for the significant change in estimated rent between 2011/12 and 2012/13. The long term lack of investment in new boats, which implies a declining level of depreciation and opportunity cost of capital over time, had not been adequately accounted for in the 'between survey years' estimation of NER (i.e. 2008/09 to 2011/12). The estimation of NER since 2012/13 incorporates a significant correction for these components.

Licences have value because the owner receives current and expected flows of NER from the fishery. The return to the capital value of the fishery can be interpreted as the NER generated relative to the market value of licences. It follows that the rate of return varies when either the NER or the market valuation of licences varies. The aggregate value of licences was estimated to be \$168 million (39 licences with an average value of \$4.3 million). An annual NER of -\$2.2 million represents a return of -1.3 per cent to the capital value of the fishery.

Table 3-9 Net Economic Return (NER) <sup>a</sup> in the Spencer Gulf Prawn Fishery, 2002/03 to 2021/22 (\$'000, real 2021/22)

	Gross Income	Less Labour	Less Cash Costs	Less Depreciation	Less Opportunity Cost of Capital (@10%)	Net Economic Return
2002/03	44,985	19,150	11,645	8,548	8,757	-3,115
2003/04	62,556	26,748	11,772	8,795	9,009	6,231
2004/05	47,498	15,927	14,061	10,772	9,767	-3,027
2005/06	49,606	17,226	13,434	9,442	8,561	943
2006/07	56,530	20,306	13,565	9,229	8,368	5,063
2007/08	45,221	16,747	13,305	8,599	10,728	-4,159
2008/09	41,638	16,061	13,531	8,649	10,790	-7,393
2009/10	37,562	14,931	12,940	8,597	10,725	-9,631
2010/11	40,531	16,614	12,666	8,470	10,567	-7,786
2011/12	33,550	14,302	13,591	7,698	9,604	-11,645
2012/13	33,513	11,610	10,674	5,558	4,943	728
2013/14	32,892	11,575	10,591	4,783	4,254	1,689
2014/15	33,628	10,913	10,081	4,194	3,730	4,711
2015/16	44,819	16,269	14,523	4,769	7,433	1,825
2016/17	44,773	16,367	14,639	4,394	6,847	2,526
2017/18	48,870	16,561	14,429	4,006	6,242	7,632
2018/19	45,726	16,421	13,504	5,344	6,954	3,503
2019/20	24,965	12,487	11,098	4,895	6,370	-9,885
2020/21	37,923	15,913	12,895	4,780	6,220	-1,885
2021/22	29,085	10,142	11,431	3,413	6,279	-2,180

<sup>a</sup> Adjusted for sample bias. Figures converted to 2021/22 dollars using the Adelaide CPI (ABS 2022). Estimates of NER are presented in nominal terms in Appendix 4.

Source: BDO EconSearch analysis

## 4. OTHER INDICATORS

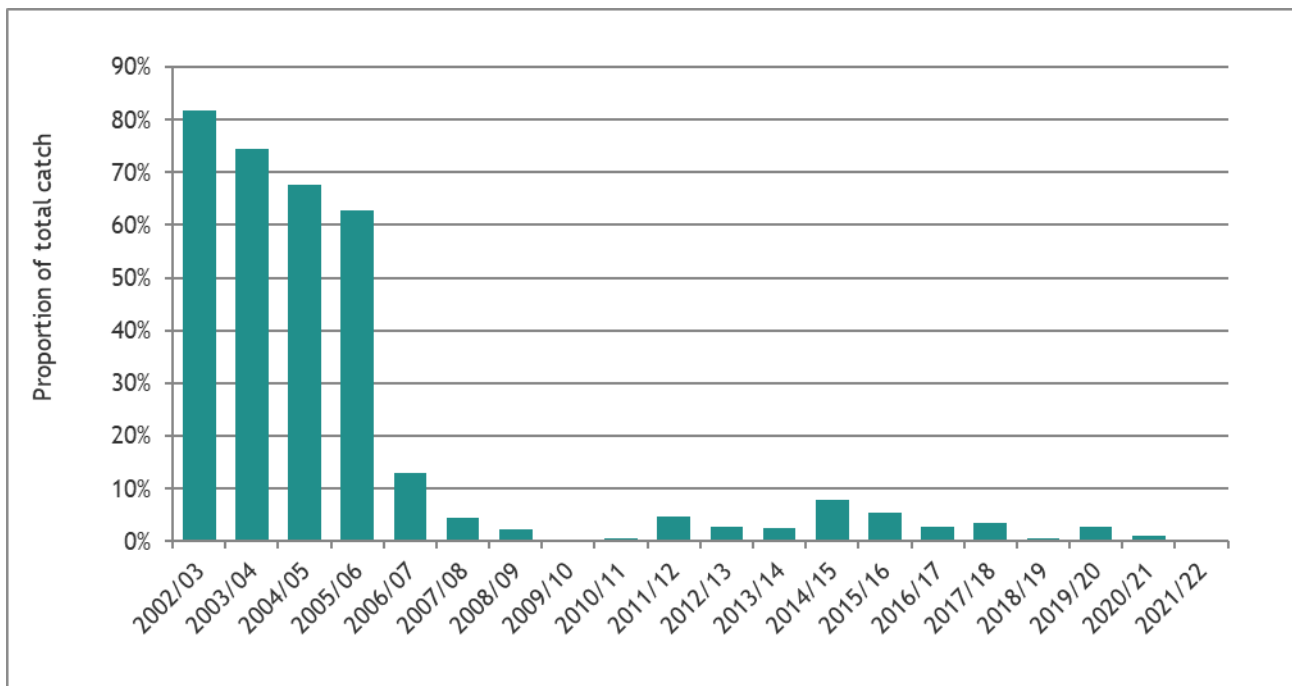
### 4.1. Biological Performance Indicators

The status of the Spencer Gulf Prawn Fishery is measured against performance indicators set out in the management plan (PIRSA 2020). For the latest stock status report see (Noell & Hooper 2021).

### 4.2. Prawn Exports from South Australia

Figure 4-1 shows a historical breakdown of total overseas exports of prawns from SA for the period 2002/03 to 2021/22. Over this period the total quantity of Prawns exported from SA has declined from 1,422 tonnes in 2002/03 to 2 tonnes in 2021/22, now a negligible proportion of catch. This is attributable to a collection of factors that have shifted the Prawn market across this period, including an increase in lower priced Prawn imports, a decrease in catch levels and an increase in domestic price.

Figure 4-1 Prawn exports from SA as a proportion of total SA catch <sup>a</sup>, 2002/03 to 2021/22



<sup>a</sup> Exports from the Spencer Gulf, Gulf St Vincent and West Coast Prawn fisheries in aggregate. These data could include product that has been shipped from interstate (for processing) and then exported from SA. Therefore, in addition to Western King Prawns caught in SA fisheries, these data could include other Prawn species caught in other Australian fisheries, accordingly the proportion of total catch has the potential to be greater than 100 per cent. Additionally, the data do not include product that is shipped interstate from SA and then exported from other states.

Source: Table 3-2

### 4.3. External Factors Influencing the Economic Contribution of the Spencer Gulf Prawn Fishery

There are a number of factors in 2021/22 that have impacted on the economic performance of the Spencer Gulf Prawn Fishery. Most of these are likely to continue to affect economic outcomes in the future.

### 4.3.1. Competing Prawn production

Competing Prawn production may impact demand of Spencer Gulf Prawns. This includes other Western King Prawn production, total Australian Prawn wild catch, Australian Aquaculture Prawn production, and Prawn imports to Australia.

Stocks of Western King Prawns in all states (caught in Western Australia, South Australia, and Queensland) are sustainable, except for the South Australian West Coast Prawn Fishery, which is depleting (Noell et al. 2021). Between 2016/17 and 2020/21 the total quantity of wild-caught Prawns in Australia has declined by 29 per cent. Over the same period, the total quantity of Australian Prawn Aquaculture production has increased by 47 per cent (Tuyman & Dylewski 2022).

Figure 4-2 and Figure 4-3 provide an overview of the quantity and value of total Prawn imports into Australia by country of origin, for the period 2002/03 to 2021/22. The total quantity of Prawns imported into Australia increased by 65 per cent between 2002/03 and 2004/05 before declining to the 20 year minimum of 13,000 tonnes in 2008/09. This decline may be attributable to the quarantine measures on the importation of Prawns implemented by Biosecurity Australia in 2007 (Biosecurity Australia 2007). The quantity of Prawns imported fluctuated between 2008/09 and 2021/22, peaking at almost 26,000 tonnes in 2013/14. Prawn imports were 21,000 tonnes in 2021/22, the highest quantity since 2013/14 and a 44 per cent increase from 2019/20. The increase in the quantity of prawns imported in 2012/13 and 2013/14 coincided with the closure of the GSV Prawn Fishery in these years, and more recently in 2019/20, the disruption of international markets due to COVID-19.

The nominal value (Australian Customs Value)<sup>4</sup> of Prawn imports decreased between 2002/03 to 2008/09, reaching a 20 year minimum of \$135 million in 2008/09. The value of Prawn imports increased significantly in 2013/14 to reach \$340 million. The value of imports has fluctuated since but generally remained higher than prior to 2013/14. The value of Prawn imports increased between 2019/20 and 2021/22 by 40 per cent, reaching \$323 million in 2021/22. The decrease in 2019/20 was partly attributable to the disruption of international markets due to COVID-19.

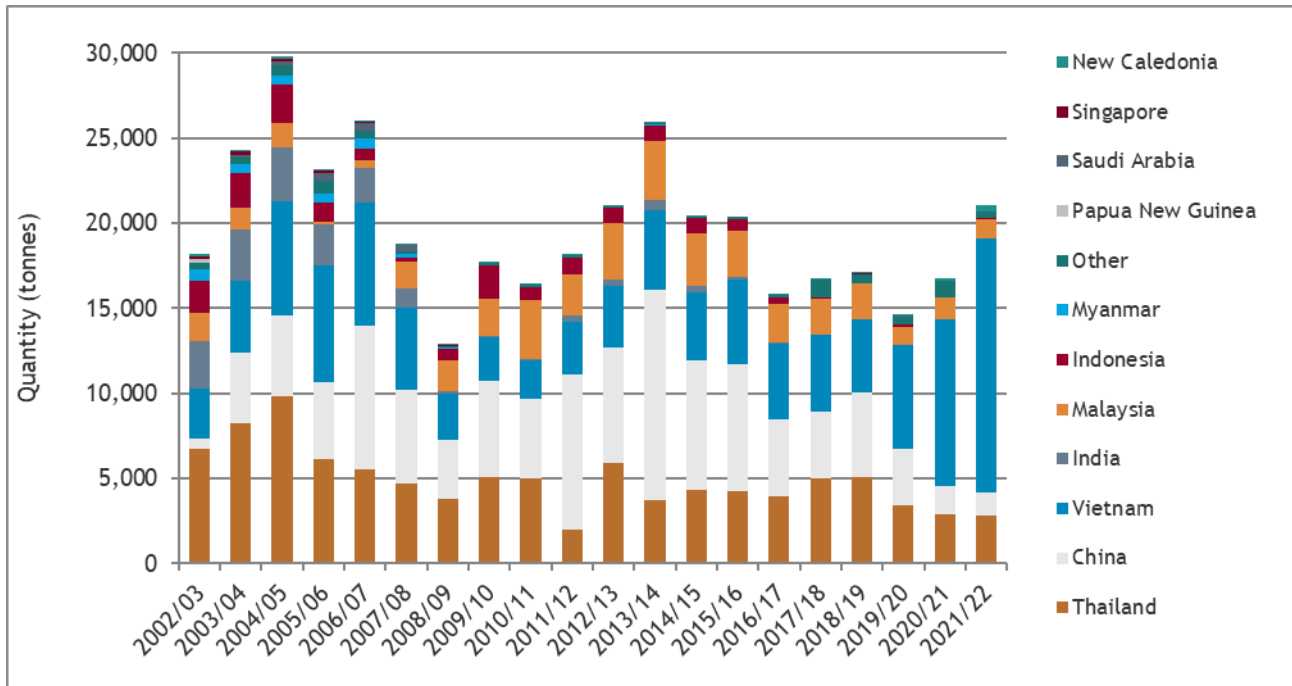
Changes in the value of imports result from changes in import quantity. Across the 20-year period, the average nominal price of Prawn imports was \$11.79/kg, 23 per cent below that in 2021/22 (\$15.30/kg). In real terms this reflects a 5 per cent difference between the 20-year average price of Prawn imports and the 2021/22 average import price.

Over the period 2002/03 to 2021/22, the most significant countries of import origin were China, Vietnam, Thailand and Malaysia, accounting for on average for 27, 27, 25 and 10 per cent, respectively, of the quantity of imports into Australia. In 2021/22, the most significant import countries of origin by volume and value were Vietnam (71 per cent of volume, 74 per cent of value), Thailand (13 per cent of volume, 13 per cent of value), China (6 per cent of volume, 6 per cent of value), and Malaysia (5 per cent of volume, 5 per cent of value) (Figure 4-2 and Figure 4-3).

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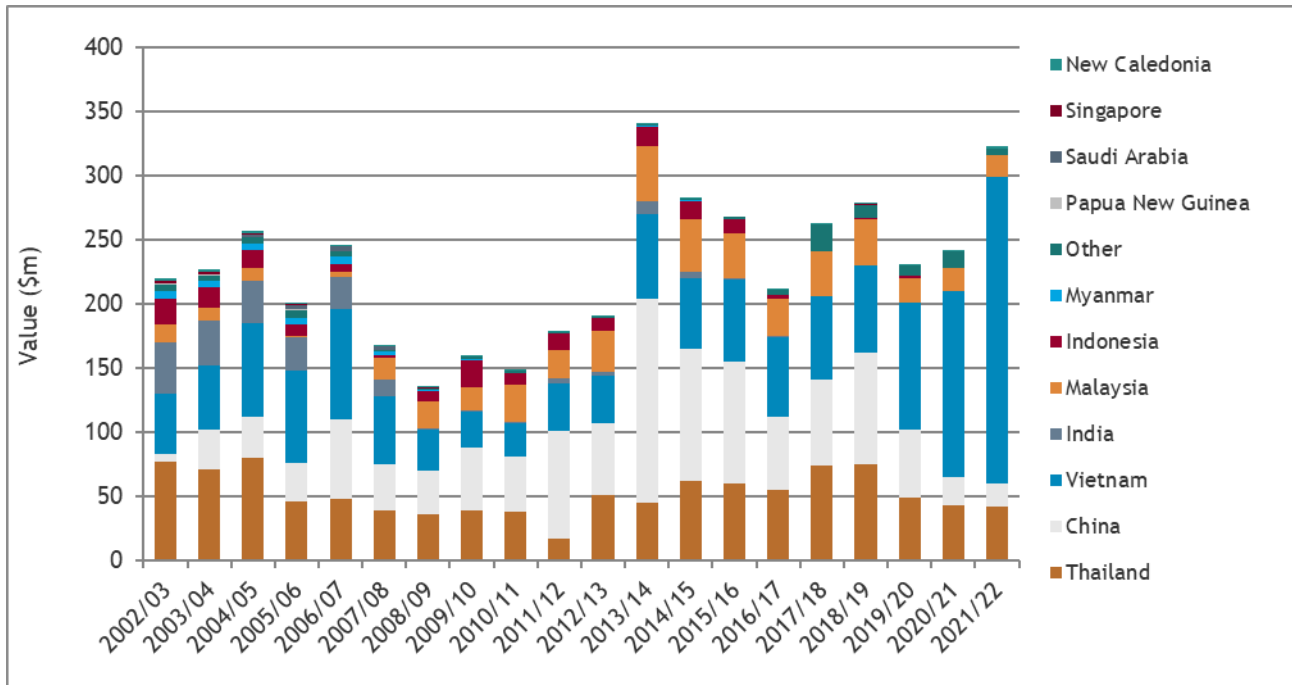
<sup>4</sup> The Australian Customs Value is the value placed on goods imported into Australia based on information advised by the importer. The Customs value is generally an estimate of the transaction value of the goods imported.

Figure 4-2 Prawn imports into Australia, quantity (t) by country of origin, 2002/03 to 2021/22



Source: Australian Bureau of Statistics (by request)

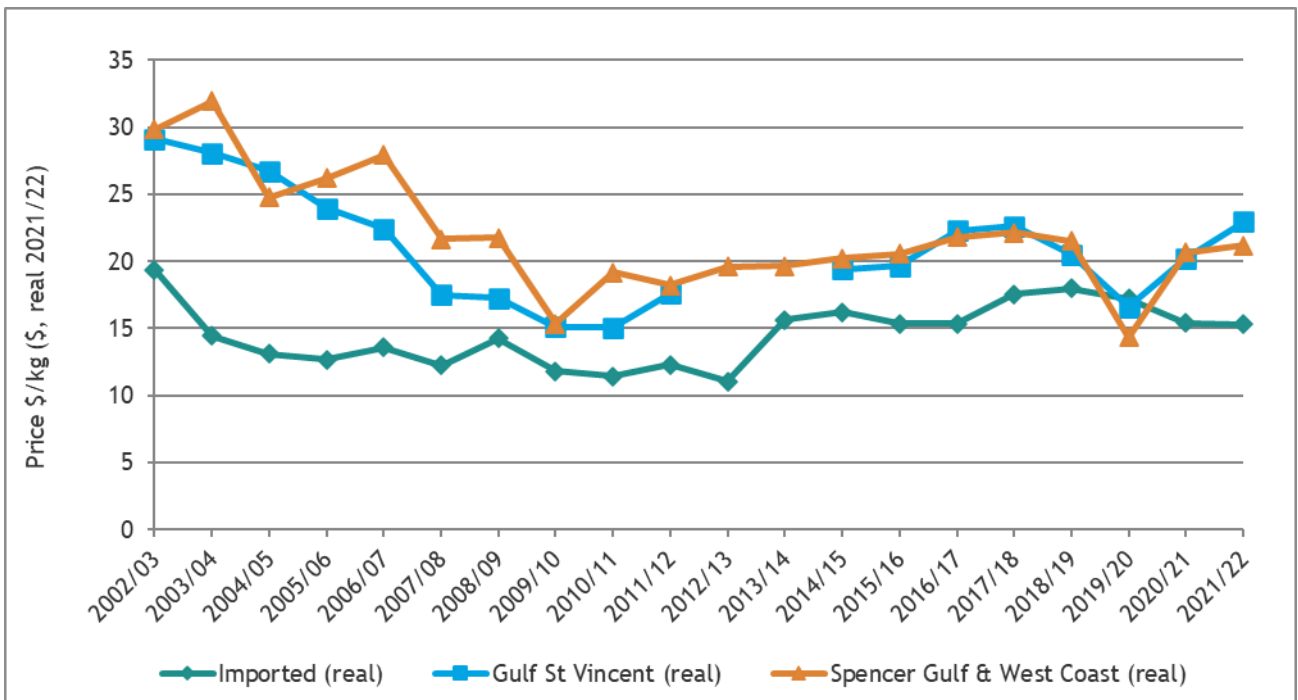
Figure 4-3 Prawn imports into Australia, value (\$m) by country of origin, 2002/03 to 2021/22



Source: Australian Bureau of Statistics (by request)

Figure 4-4 highlights the trends in prices received for Prawns caught in the two SA Prawn fisheries and for Prawns imported into Australia from overseas. In order to enable comparison between years, nominal prices have been adjusted using the consumer price index (ABS 2022) to calculate real prices in terms of 2021/22 dollars. For the 20 years included in the analysis, 2002/03 to 2021/22, the real price of imported Prawns in 2021/22 was 5 per cent lower than the average for the 20 year period. Over this period the real price received for Prawns caught in the Gulf St Vincent Fishery decreased by 21 per cent and in the Spencer Gulf Fishery by 29 per cent. The declining real price trend is similar in both SA Prawn fisheries over this period. Imports of cheaper aquaculture Prawns into Australia have led to increasing efforts by the SA Prawn fisheries to promote its product as a premium product.

Figure 4-4 Real prices for imported and SA Prawns, 2002/03 to 2021/22



Source: ABS (by request), ABS (2022) and SARDI Aquatic Sciences

#### 4.4. Contribution to the Community

In addition to the economic contribution made to the state economies (Section 3.6), the Spencer Gulf Prawn Fishery also contributes to the social, environmental and heritage values of the region, through involvement in community-support activities and contribution to the provision, maintenance and expansion of local and regional services and businesses. The estimated time spent on community based activities by licence holders (including licence holders' family members and employees) in 2021/22 is summarised in Table 4-10.

On average, each licence holder (including family members and employees) spent over 6 hours per month on community based activities. It is likely that these estimates understate the full community impact of the fishery, as not all licence holders were confident providing estimates of the community service activities undertaken by their employees. Assuming that the average estimate provided by the survey participants is a reasonable representation of the average amount of community service for the average licence holder, Spencer Gulf Prawn Fishery licence holders, as a whole, spent around 238 hours per month on community based activities.

Assuming the value of time foregone is approximately \$30 per hour<sup>5</sup>, the average value of each licence holder's time spent on community based activities was around \$184 per month or around \$2,206 for the full year (2021/22). On a whole of fishery basis, the aggregate value of time spent on community based activities was around \$7,170 per month or just over \$86,000 for the full year.

Table 4-10 Estimated time per month spent on community based activities, 2021/22

Activity	Hours per month	
	Average per Licence Holder	All Licence Holders
Conservation	0.3	10
Marine Rescue	0.6	24
Compiling fishing related information	0.9	35
Technical advice	0.9	37
CFS, SES, Ambulance, Schools	0.6	24
Sporting clubs	2.3	88
Other	0.5	20
<b>Total</b>	<b>6.1</b>	<b>238</b>

Source: 2022 licence holder survey

#### 4.5. Love Australian Prawns Campaign

The Love Australian Prawns campaign is the first voluntarily funded national marketing campaign for an entire seafood category. The campaign began in 2013 and aims to increase the demand for Australian Prawns through activities including marketing collateral distribution, collaborative marketing with Woolworths and Coles, direct consumer marketing online and social media (Love Australian Prawns 2019).

<sup>5</sup> Valuation of time is a difficult concept. The key question is whether one should use the value of time in work to value time spent on leisure or other non-work related activities. The use of \$30 per hour is an approximation of the opportunity cost of time in work for the average person (i.e. an approximation of the average wage rate). The Australian Bureau of Statistics used 3 methods to value volunteers' time and produced a range of estimates from \$27.85/hr to \$32.49/hr in 2023 dollars (inflated from 1997 estimates (Ironmonger 2002, p. 3)).



As part of the 2022 survey, licence holders were asked about their awareness and use of the Love Australian Prawns campaign. All licence holders except for two were aware of the campaign at the time of the survey. Of the sixteen surveyed licence holders, eight indicated that they or their buyers engage in activities, use of logo, or promotions through the Love Australian Prawns campaign. Examples of these activities included utilising the advertising materials produced by the campaign, printing the logo on product packaging, and point of sale materials including information pamphlets, posters, recipes, cook books, menu cards, tastings, bags and hats. Licence holders also reported that they derive benefits from the campaign such as increased consumer awareness and increased prices for their products.

#### **4.6. Social Licence**

The term social licence refers to the ongoing acceptance of a company or industry's standard business practices and operating procedures by its employees, stakeholders, and the general public. This is a particularly important concept for the Spencer Gulf Prawn Fishery as trawling is a contentious form of fishing that is often surrounded by debate (CSIRO 2022). Licence holders who participated in the 2022 Spencer Gulf Prawn Fishery survey were asked if they believe that their industry has a good social licence, and if they believe it is an important concept for the fishery.

All surveyed licence holders indicated that they believe that the industry has a good social licence. Explanations included that the Spencer Gulf Prawn Fishery is a very efficient, highly regulated and sustainable seafood producer. Licence holders have historically been proactive in their approach to sustainability and identifying sensitive areas in the gulf and protecting them through voluntary self imposed closures. The first closure occurred in 1973 and with seven more over the following years. The fishery also has a good relationship with the community as they are transparent with all stakeholders of the Spencer Gulf area, keeping them informed by providing frequently updated information on their websites, and providing sponsorship to community events and businesses. Overall the fishery has a very small environmental footprint due to the limited number of days that licence holder's trawl and this is communicated to stakeholders.

Surveyed licence holders believe that social licence is an important concept for the fishery as the fishery is a public resource managed on behalf of the community. As a result, licence holders feel they have a caretaking responsibility and believe it is important that the general public are aware that the sustainability of the fishery is a priority for the longevity of the industry and benefits returned to the community. Additionally, a good reputation is essential for business operations and sustainability is a key promotional driver.

#### **4.7. Employees in Spencer Gulf Prawn Fishery Businesses**

Licence holders who participated in the 2022 Spencer Gulf Prawn Fishery survey were asked about the length in years that current employees have worked in Spencer Gulf Prawn Fishery businesses. The average length of employment for an individual employed in the Spencer Gulf Prawn Fishery businesses at the time of the survey was 10 years.

Between 2020 and 2022, 13 employees left Spencer Gulf Prawn Fishery businesses. Of these employees, 85 per cent moved to a position outside of the industry, and 15 per cent moved to a different position inside of the industry. This is important to note as trained and skilled employees exiting the industry can have a significant impact on the efficiency of business operations. This is because important resources are expended on retraining employees, which results in reduced productivity and profitability and can impact

safety and quality of the product produced. The expertise of employees exiting the industry are not only lost by the business, but also the broader industry.

#### 4.8. COVID-19

The Spencer Gulf Prawn Fishery was one of the SA fisheries that was affected by the COVID-19 pandemic. In January 2020, the COVID-19 pandemic was beginning to effect key export markets, as countries closed their borders and entered into lockdowns. Restaurants and small retailers were closed, thus the supermarkets were taking the majority of the product. This caused an increase in the supply of prawns, which resulted in a drop in price. The decrease in price in 2019/20 is more significant in the Spencer Gulf Prawn fishery when compared to the Gulf St Vincent Prawn fishery. The difference between fisheries may be due to the bulk of the Spencer Gulf Prawn product being landed when there was the greatest uncertainty during the pandemic. The impact of the COVID-19 pandemic appeared to be most significant in 2019/20 before easing in 2020/21.

In the 2022 survey, most licence holders indicated that COVID-19 affected their business operations in 2019/20. In comparison to a typical operational year, the most impacted aspect of the Spencer Gulf Prawn Fishery business operations was business revenue (down 32 per cent), followed by the price received for products (down 29 per cent) and volume of catch (down 18 per cent) (Table 4 1).

**Table 4-11 Estimated impact of COVID-19 in 2019/20 on various operational aspects of the Spencer Gulf Prawn Fishery**

Impact of COVID-19 on the following factors	Average percentage change
Price received for products	-29%
Volume of catch	-18%
Business revenue	-32%
Cost of a day of commercial fishing (wages only)	-6%
Cost of a day of commercial fishing (non-wage costs)	1%

Source: 2022 survey response

The cost of a day of commercial fishing remained relatively stable, with wage costs declining by 6 per cent and non-wage costs increasing by 1 per cent. Based on licence holder estimates, the total loss of Spencer Gulf Prawn Fishery GVP attributable to the COVID-19 pandemic was \$10.8 million in 2019/20. It is therefore estimated that if the COVID-19 pandemic had not impacted the Spencer Gulf Prawn Fishery in 2019/20, GVP would have totalled around \$33.6m.

#### 4.9. Marine Stewardship Council (MSC) Certification

The MSC certification is awarded to fisheries that meet certain standards for sustainable fishing and seafood traceability. MSC certification can be used as a marketing tool by the licence holders in the fishery to improve the value of their products.

Licence holders who participated in the 2022 Spencer Gulf Prawn Fishery survey were asked about whether the certification allowed them to receive a price premium. Nine of the sixteen surveyed licence holders reported that they were able to access a price premium of 4 to 20 per cent as a result of the MSC certification for the fishery.

Surveyed licence holders also indicated that they have utilised the MSC certification to undertake activities to promote their product as sustainable, including adding the logo to products, including sustainability information on their website, participating in a sustainability documentary, and utilising the recipe cards and other promotional material on how the prawns harvested by the Spencer Gulf Prawn Fishery are sustainably caught. Of the sixteen surveyed licence holders, ten believe that there are further opportunities to promote their product as sustainable with the MSC certification. Listed examples included further promotion online and with social media platforms, more local collaboration, and additional effort to educate the public on sustainable fishing and wild-caught versus farmed products.

## **4.10. Other Indicators**

### **4.10.1. Time in fishery**

The number of years that individual licence holders in the Spencer Gulf Prawn Fishery had owned fishing licences was between 55 and 2 years, with an average length of ownership of 25 years.

### **4.10.2. Age of licence holders**

The average age group for licence holders at the time of the 2022 survey was over 61-65 years. The average age of Spencer Gulf Prawn Fishery licence holders is slightly below that for SA owner/managers of broad acre and livestock properties. In 2021, the average age of farm owner/managers was 63 years (DAFF 2023).

## 5. SOCIAL INDICATORS

In 2022 survey respondents were asked about their perceptions of various aspects of the Spencer Gulf Prawn Fishery including the outlook for the fishery, management, equity of treatment and their satisfaction with fishing. These perceptions and views are summarised in Figure 5-1 to Figure 5-3.

The fishery outlook by survey respondents was positive, with 94 per cent of licence holders either agreeing or strongly agreeing that they enjoy being part of the Spencer Gulf Prawn Fishery, that being part of the Spencer Gulf Prawn Fishery is important to them and that when someone praises the Spencer Gulf Prawn Fishery it feels like a personal compliment. Additionally, 88 per cent of licence holders indicated that being in the Spencer Gulf Prawn Fishery makes them feel a sense of belonging, and 81 per cent indicated that they usually say ‘we’ rather than ‘they’ when talking about the Spencer Gulf Prawn Fishery. Agreeance to these statements declined slightly overall when compared to the 2017 survey (Figure 5-1).

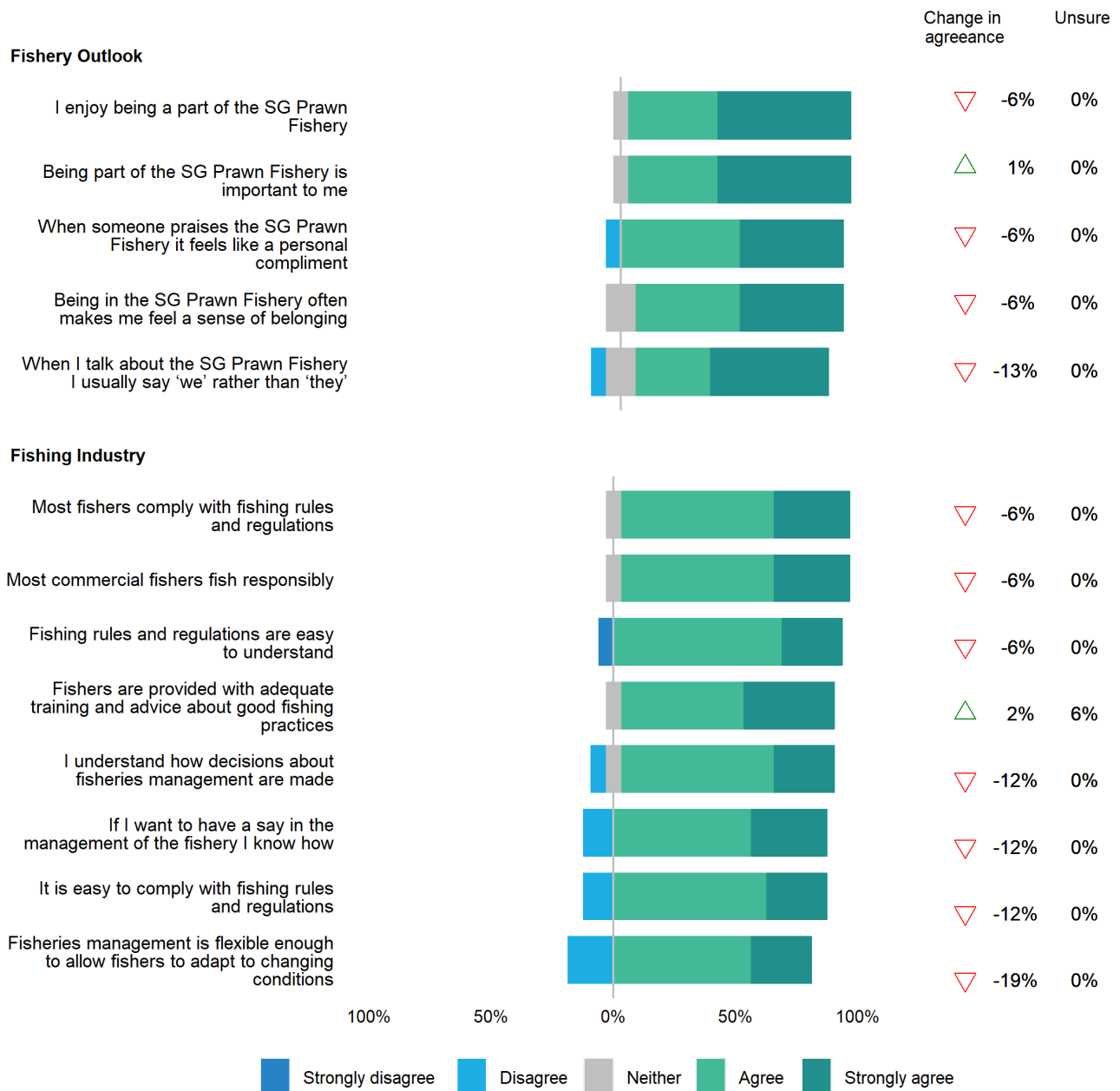
Fishers’ perceptions of the Spencer Gulf Prawn fishing industry were also positive overall, with 94 per cent of licence holders agreeing with the statements ‘*most fishers comply with fishing rules and regulations*’, ‘*most commercial fishers fish responsibly*’, ‘*fishing rules and regulations are easy to understand*’ and ‘*fishers are provided with adequate training and advice*’. A total of 88 per cent of licence holders also indicated that they understand how decisions about fisheries management are made, that they know how to have a say in fisheries management and that it is easy to comply with rules and regulations. Additionally, 81 per cent of licence holders agreed that fisheries management is flexible enough to allow fishers to adapt to changing conditions. Overall, the change in agreeance to these statements when compared to the 2017 survey declined slightly, ranging from a 19 per cent decrease, to a 2 per cent increase in agreeance (Figure 5-1).

Fishers’ perceptions of the role of the Spencer Gulf Prawn Fishery Management Committee were very positive overall. All survey respondents either agreed or strongly agreed with all statements, which included ‘*I can easily access information about Spencer Gulf Prawn fishery management*’, ‘*the MC does a good job of managing the Spencer Gulf Prawn fishery*’, and ‘*information produced by the MC is easy to understand*’ (Figure 5-2).

Fishers’ perceptions of the Committee at Sea were also positive, with 94 per cent of licence holders agreeing that ‘*I can easily access information about Spencer Gulf Prawn Fishery management*’, and 88 per cent agreeing that ‘*the Committee at Sea does a good job of managing the Spencer Gulf Prawn Fishery in real time*’. Additionally, 75 per cent of licence holders also agreed that ‘*information produced by the Committee at Sea is easy to understand*’. However, overall agreeance to these statements decreased slightly when compared to the 2017 survey (Figure 5-2).

Licence holders’ perceptions of PIRSA were also positive overall, with 88 per cent of survey respondents agreeing that ‘*PIRSA does a good job of managing the Spencer Gulf Prawn Fishery*’, and ‘*information produced by PIRSA is easy to understand*’. In addition, 81 per cent of licence holders agreed that they ‘*can easily access information about Spencer Gulf Prawn Fishery management*’. Agreeance with the statements ‘*PIRSA does a good job of managing the Spencer Gulf Prawn Fishery*’ and ‘*I can easily access information about Spencer Gulf Prawn Fishery management*’ declined by 12 per cent and 19 per cent, respectively when compared to the 2017 survey (Figure 5-2).

Figure 5-1 Fishers' perceptions of the SA Spencer Gulf Prawn Fishery <sup>a</sup>



<sup>a</sup> 16 licence holders provided responses to these social questions.

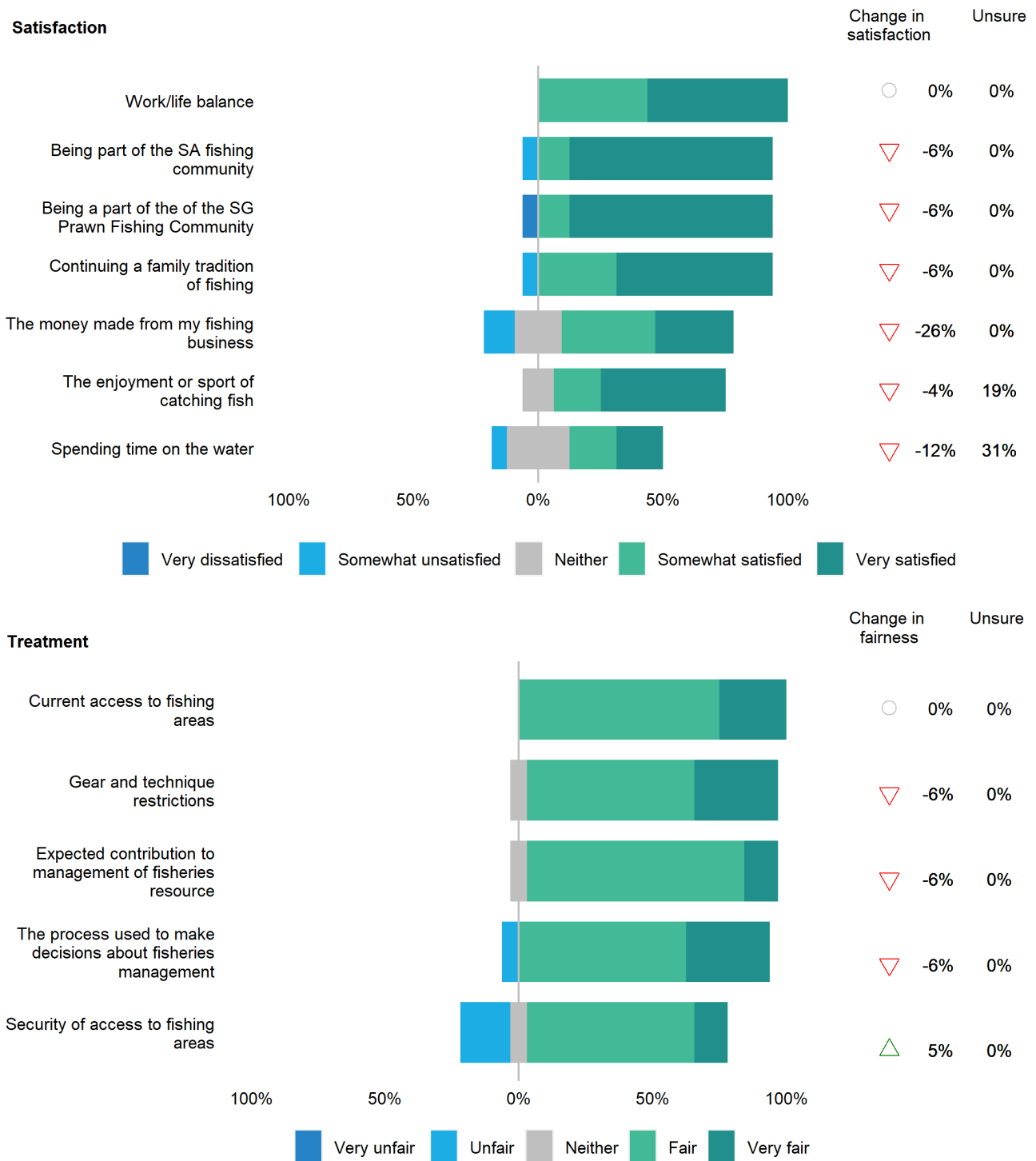
Source: 2022 Licence Holder Survey

Figure 5-2 Fishers' perceptions of the SA Spencer Gulf Prawn Fishery (cont.) <sup>a</sup>



<sup>a</sup> 16 licence holders provided responses to these social questions.  
Source: 2022 Licence Holder Survey

Figure 5-3 Fishers' perceptions of the SA Spencer Gulf Prawn Fishery (cont.) <sup>a</sup>



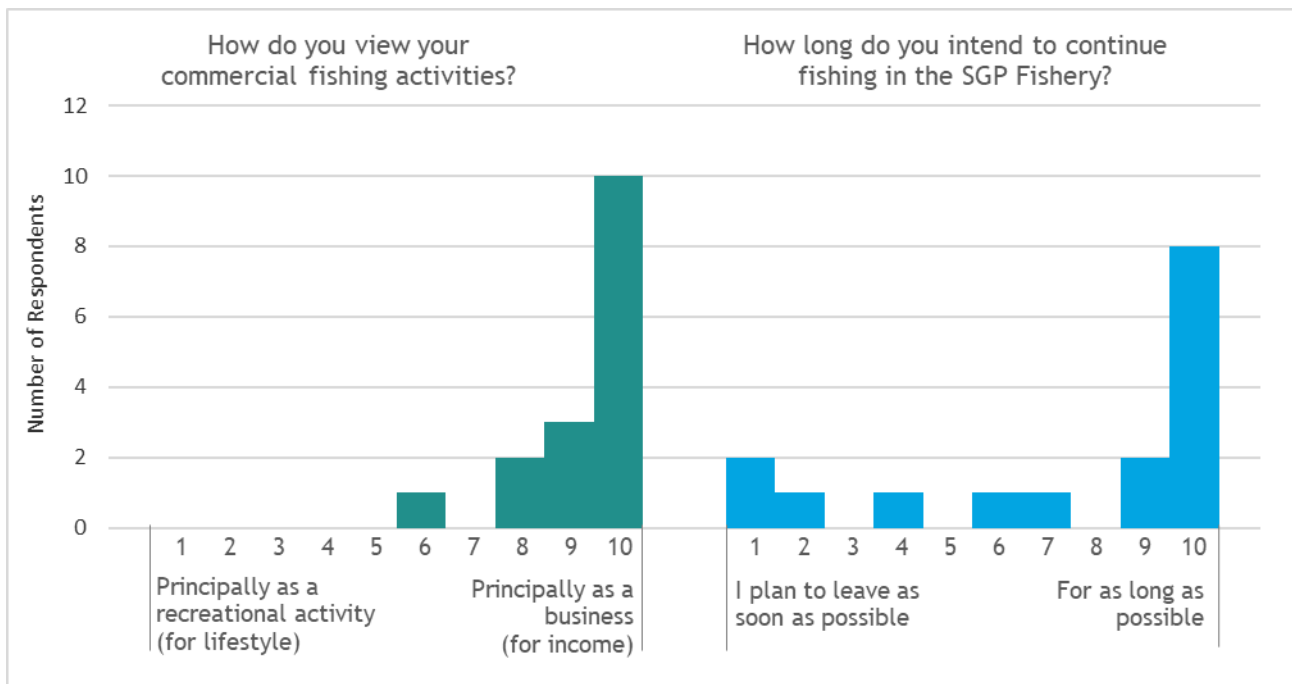
<sup>a</sup> 16 licence holders provided responses to these social questions.  
Source: 2022 Licence Holder Survey

Fishers were asked to indicate their satisfaction with 7 aspects of fishing in the Spencer Gulf Prawn Fishery (Figure 5-3). Responses were positive overall, with 4 out of the 7 aspects receiving above a 94 per cent satisfaction level. The 4 aspects with the highest satisfaction were ‘work life balance’ (100 per cent satisfaction level), ‘being part of the South Australian Fishing community’ (94 per cent satisfaction level), ‘being part of the Spencer Gulf Prawn Fishing community’ (94 per cent satisfaction level) and ‘continuing a family tradition of fishing’ (94 per cent satisfaction level). The lowest rated component of satisfaction was the ‘spending time on the water’ (55 per cent satisfaction level). Since 2017, fisher satisfaction with these aspects declined between 0 and 26 per cent. Satisfaction with ‘the money made from the fishing business’ declined the most significantly since 2017 (26 per cent), followed by ‘spending time on the water’ (12 per cent).

Fishers were also asked about the equity of their treatment in the Spencer Gulf Prawn Fishery across various fishery aspects relative to other users of the resource (Figure 5-3). The responses were again mostly positive overall. Over 94 per cent of respondents felt that current access to fishing areas, gear and technique restrictions, expected contribution to management of fisheries resource, and the processes used to make decisions about fisheries management were fair. However, only 75 per cent of licence holders felt that the security of access to fishing areas was fair. Note that not all stakeholders of this community resource (recreation, tourism, etc.) were surveyed which is required for any objective analysis on perceptions of management and equity.

In 2022, most survey participants viewed their commercial fishing activities principally as a business, rather than a lifestyle. With respect to future intentions of staying in the Spencer Gulf Prawn Fishery, 63 per cent of survey participants indicated that they intend to keep fishing for as long as possible. A further 19 per cent of respondents indicated that they intend to continue fishing in the short-term future (Figure 5-4).

Figure 5-4 Fishers’ intentions to continue fishing in the SA Spencer Gulf Prawn Fishery <sup>a</sup>



Source: 2022 Licence Holder Survey

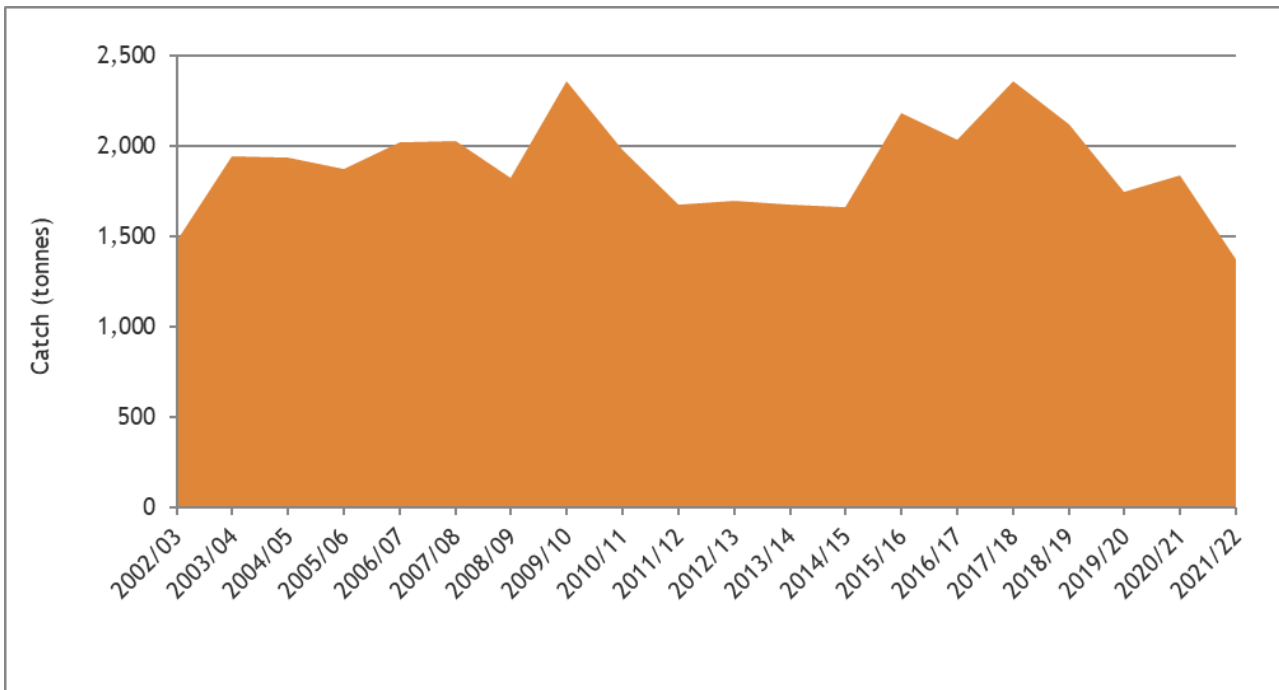


## 6. ECONOMIC TRENDS IN THE FISHERY

### 6.1. Catch and Gross Value of Production

The data shown in Figure 6-1 indicate that despite year-to-year fluctuations total catch for the fishery has been relatively constant for the last 20 years. Over the period catch has averaged around 1,900 tonnes per annum with its highest level in 2009/10 and 2017/18 (2,361 tonnes) and lowest level in 2021/22 (1,372 tonnes). The number of nights fished in 2021/22 was the second lowest for the 20 year period, contributing to the reduced catch in 2021/22.

Figure 6-1 Spencer Gulf Prawn Fishery catch, 2002/03 to 2021/22

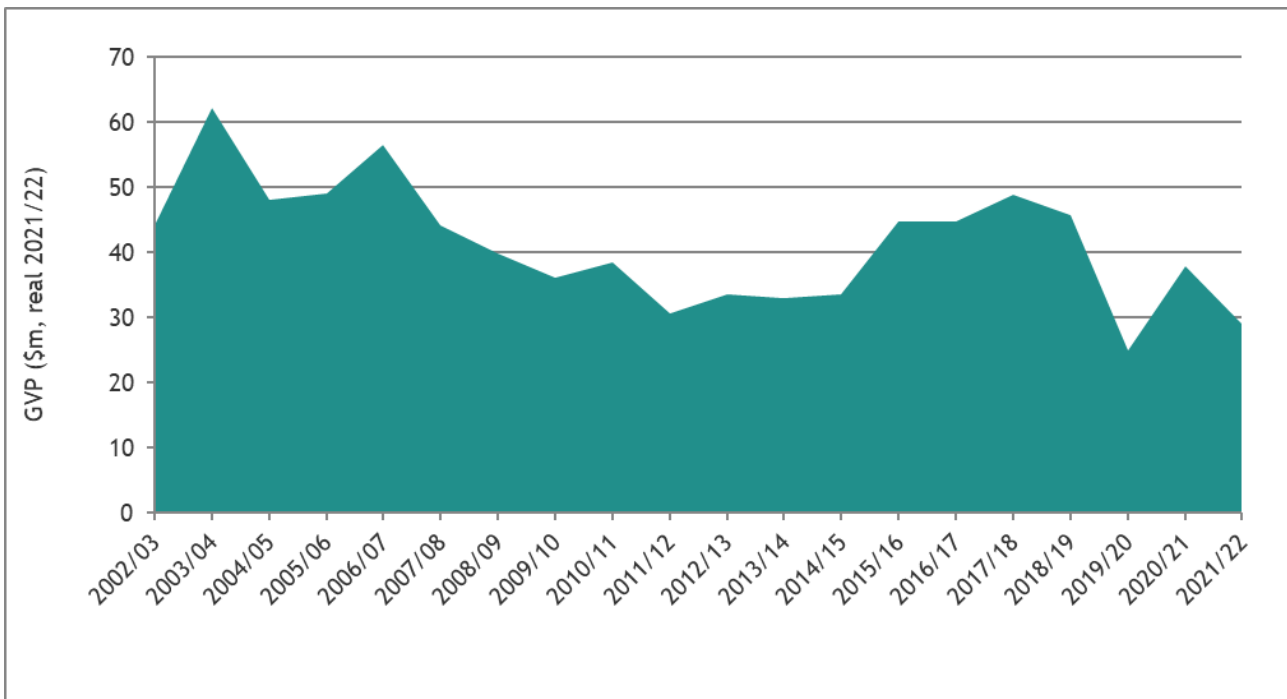


Source: Table 3-2

The Gross Value of Production (GVP) for the Spencer Gulf Prawn Fishery for the period 2002/03 to 2021/22 is illustrated in Figure 6-2. Between 2002/03 and 2011/12, real GVP trended downwards (with fluctuations) mainly due to a declining trend in real price. From 2012/13 real GVP recovered, although was still below its 2002/03 levels. Real GVP was notably low in 2019/20, primarily due to the fall in price and decision to reduce fishing due to poor prices during COVID-19, and in 2021/22 due to the reduction in catch.

Catch, GVP and price indices for the fishery for the last 20 years are illustrated in Figure 3-1. The trends in this figure highlight how the interaction between catch and price affects GVP. In particular, the decline in the real price for Prawns in 2009/10 coincided with an increase in catch, so that GVP remained constant. Additionally, the coinciding sharp decline in real price and reduction in catch in 2019/20 resulted in a particularly low year for GVP. While the nominal price for Prawns has been relatively constant (despite some fluctuations) the real price has declined overall.

Figure 6-2 Spencer Gulf Prawn Fishery GVP, 2002/03 to 2021/22 <sup>a</sup>



<sup>a</sup> GVP is expressed in real 2021/22 dollars.

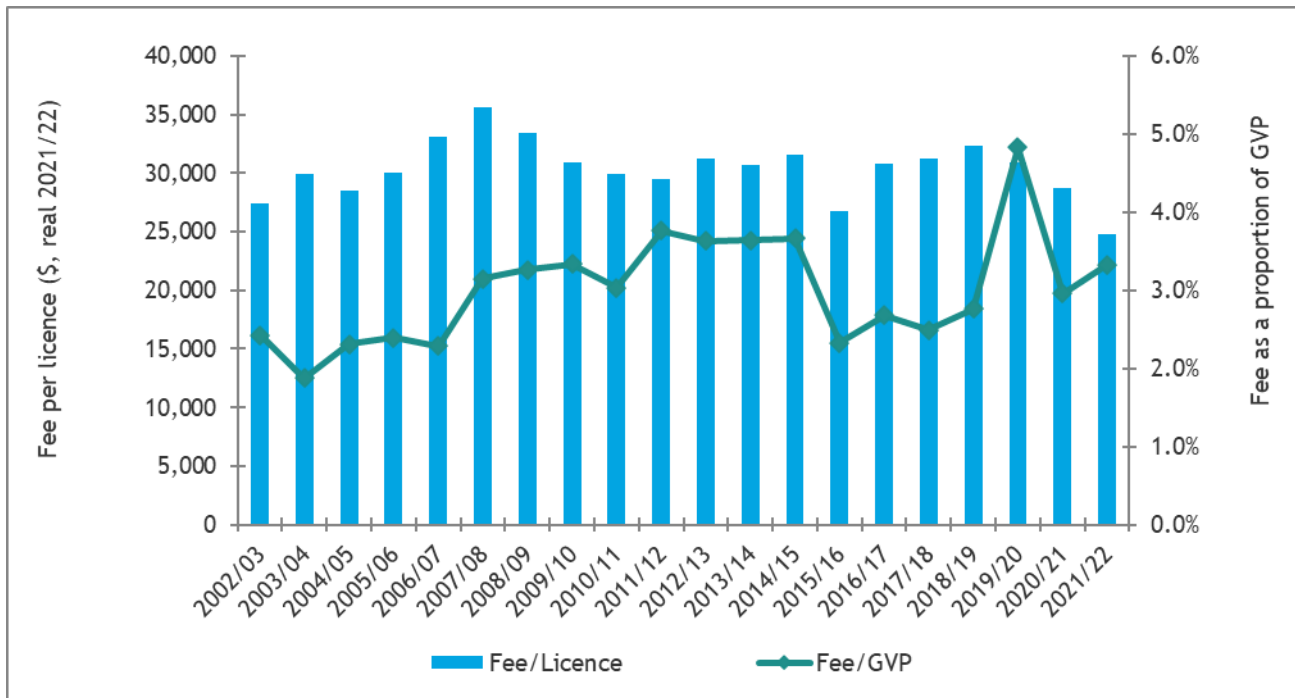
Source: Table 3-2

## 6.2. Management Costs

The average management fee per licence holder and the licence fee as a proportion of GVP are illustrated in Figure 6-3. Licence fees as a percentage of GVP fluctuated between years but overall increased from 2.4 per cent in 2002/03 to 4.8 per cent in 2019/20, where it peaked at a 20-year high. This was due to the decreased GVP from lowered prawn prices triggered by the COVID-19 pandemic, and a reduced number of nights fished due to a more conservative fishing strategy. Licence fees as a percentage of GVP then fell in 2021/22 to 3.3 per cent as a result of a fall in aggregate licence fees and an improvement in GVP.

In comparison to other fisheries, licence fees as a percentage of GVP have been historically low within the Spencer Gulf Prawn Fishery (Appendix Table 2-3) due to the ongoing efforts of the fishery to progress co-management arrangements which aim to reduce management costs since industry is delegated more responsibility to manage the fishery within its own resources (Spencer Gulf & West Coast Prawn Fishermen’s Association Inc. pers. comm.).

Figure 6-3 Management fee per licence holder and as a proportion of GVP, Spencer Gulf Prawn Fishery, 2002/03 to 2021/22 <sup>a</sup>



<sup>a</sup> Estimates of management costs and GVP are expressed in real 2021/22 dollars.

Source: Table 3-3

### 6.3. Financial Performance Indicators

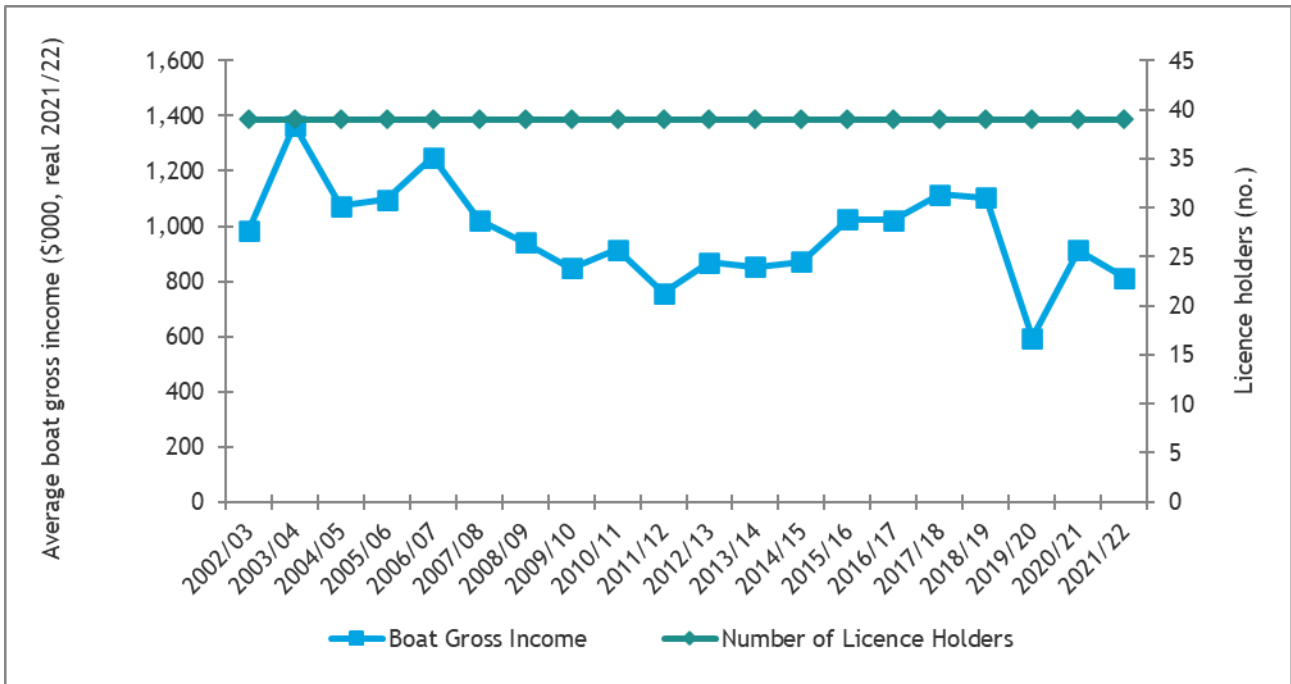
#### Average income

Average income and total number of licences in the fishery for the last 20 years is illustrated in Figure 6-4. The total number of licence holders in the fishery has not changed over the period of analysis. Accordingly, changes in the average income per boat directly relate to the total GVP for the fishery. The average income per boat (in real terms) decreased from \$982,000 in 2002/03 to approximately \$812,000 in 2021/22 to be below the 20-year average of \$971,000. This indicator reached a 20-year low in 2019/20 (\$594,000) due to real GVP also reaching a 20-year low of \$23.5 million resulting from a drop in catch (18 per cent) and real price for Prawns (34 per cent). The fall in price was due to the closures of restaurants and small retailers triggered by the COVID-19 pandemic, leading to an increased supply of prawns and consequently a decline in price. Average income recovered to \$812,000 in 2021/22, though this was still the second lowest average income reported for the 20-year period.

#### Operating cost trends

A breakdown of major cost items as a proportion of total cash costs is illustrated in Figure 6-5. In each year of the analysis labour costs accounted for the largest share of total cash costs. The labour costs are comprised of payments to licence owners and crew as well as an imputed wage to those licence owners and other family members who are not paid a wage directly by the business. Other significant cash costs were fuel, repairs and maintenance, insurance, and office and admin (Figure 6-5).

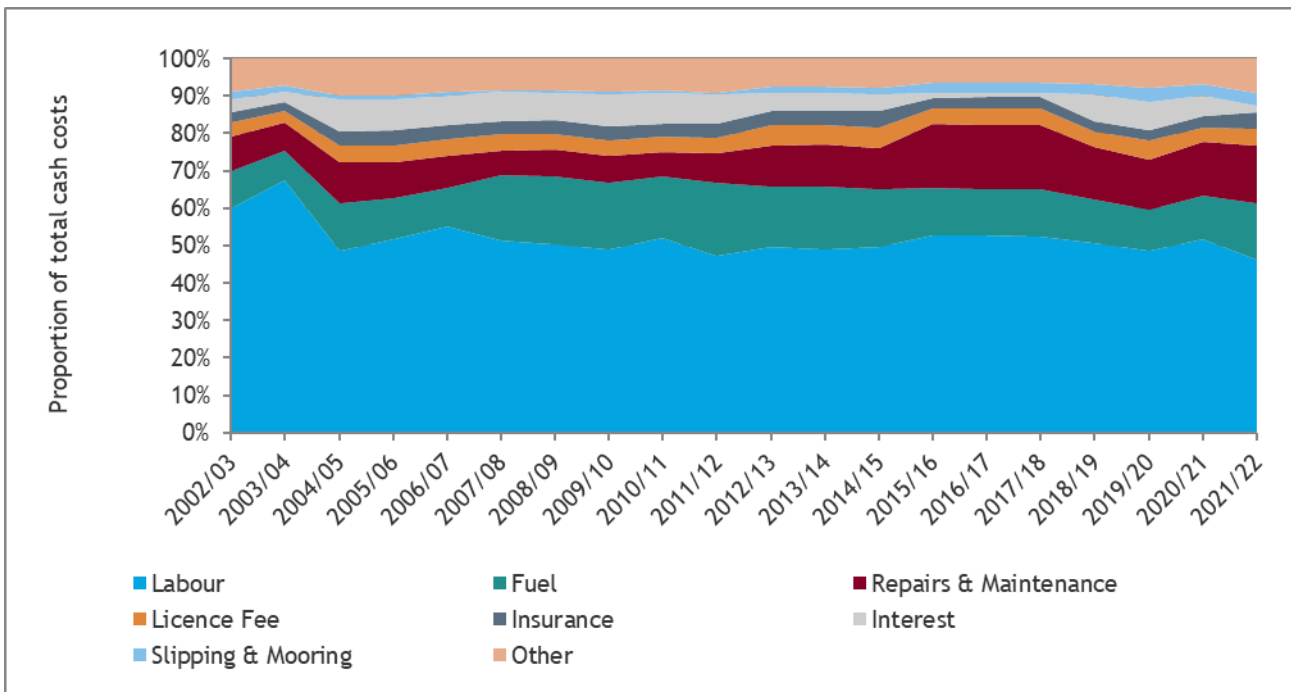
Figure 6-4 Average income per licence holder in the Spencer Gulf Prawn Fishery, 2002/03 to 2021/22<sup>a</sup>



<sup>a</sup> Estimates of average boat gross income are expressed in real 2021/22 dollars.

Source: Table 3-3 and Table 3-4 and Appendix Table 3-1 and Appendix Table 3-6

Figure 6-5 Cost shares in the Spencer Gulf Fishery, 2002/03 to 2021/22<sup>a</sup>

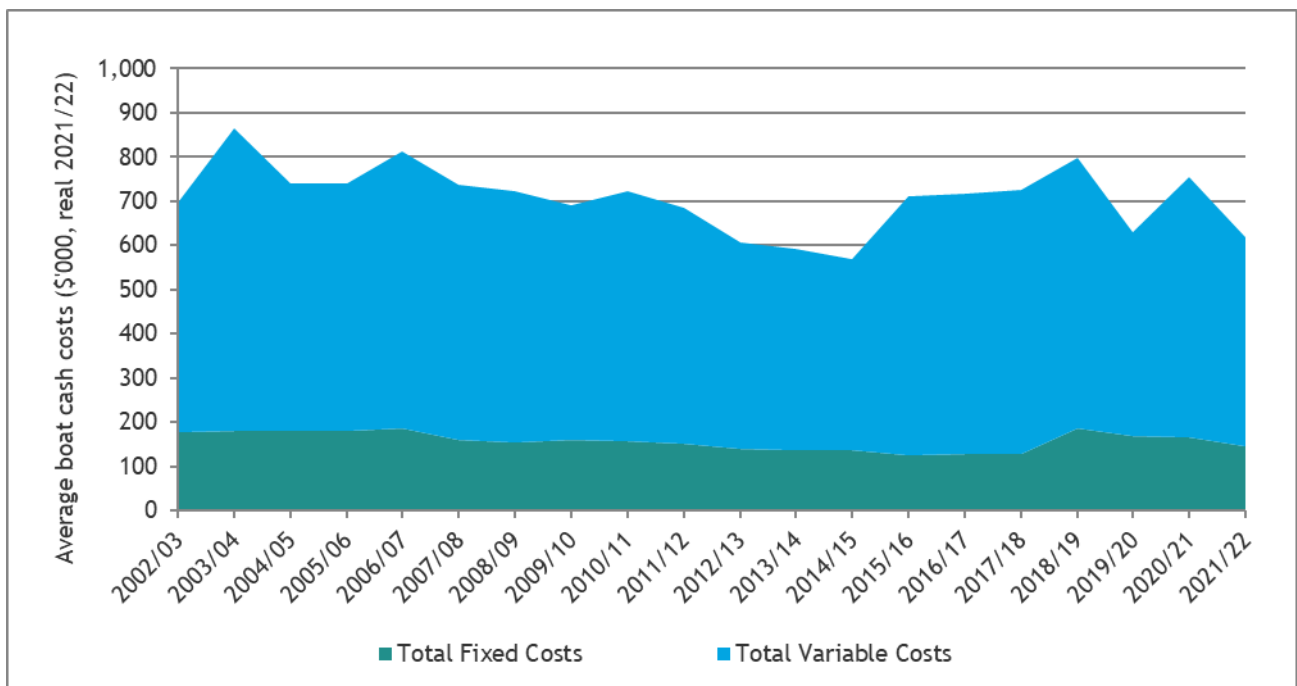


<sup>a</sup> Financial performance estimates were based on different survey samples and techniques. Some of the difference between years is, therefore, attributable to sampling variability.

Source: Table 3-4 and Appendix Table 3-1 and Appendix Table 3-6

The cash costs detailed in Figure 6-5 can be categorised as either variable or fixed costs (see Table 3-4). Total variable costs and total fixed costs are illustrated in Figure 6-6 on an average per boat basis. Total variable costs decreased overall between 2002/03 and 2021/22, with some year to year fluctuations. This appears to be linked to movements in labour costs and repairs and maintenance as fuel and other variable costs have been relatively constant. As gross income has reduced over time, wages (which are paid as a percentage of gross income) have declined as well. As would be expected, total fixed costs have not fluctuated significantly from year to year. Fixed costs did follow a very slight decreasing trend until experiencing a rise from 2017/18 due mainly to an increase in interest payments but have been gradually decreasing since (Figure 6-6).

Figure 6-6 Average total costs in the Spencer Gulf Prawn Fishery, 2002/03 to 2021/22 <sup>a</sup>



<sup>a</sup> Estimates of average costs are expressed in real 2021/22 dollars.

Source: Table 3-4 and Appendix Table 3-1 and Appendix Table 3-6

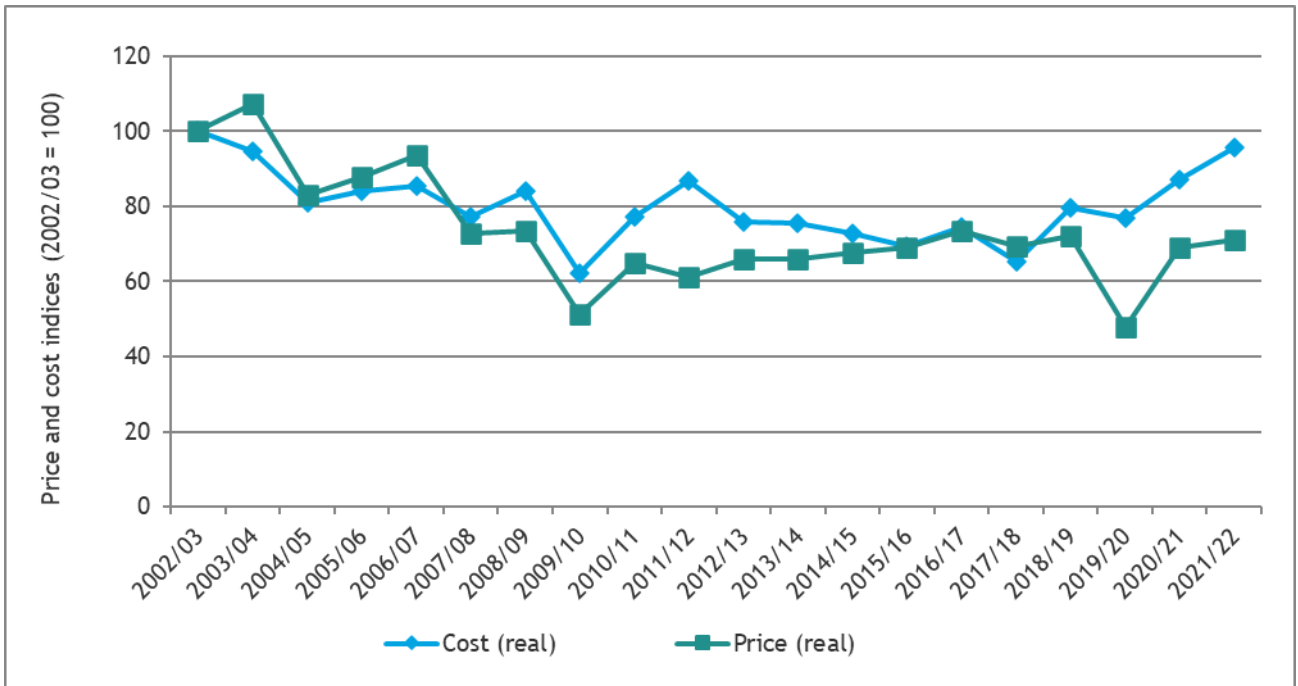
### Cost price squeeze

Price and cost indices for the Spencer Gulf Prawn Fishery for the last 20 years are summarised in Figure 6-7. These indicators are derived from the average price and average cost per kilogram of catch. The average cost of catching Spencer Gulf Prawns was \$17.59/kg in 2021/22, 15 per cent higher than the 20-year average (\$14.73 in real 2021/22 terms). Whereas the average price received for Spencer Gulf Prawns in 2021/22 was \$21.20, 3 per cent lower than the average over the same period (\$21.90 in real terms), reducing the per kg profit for Prawn catch.

### Profitability

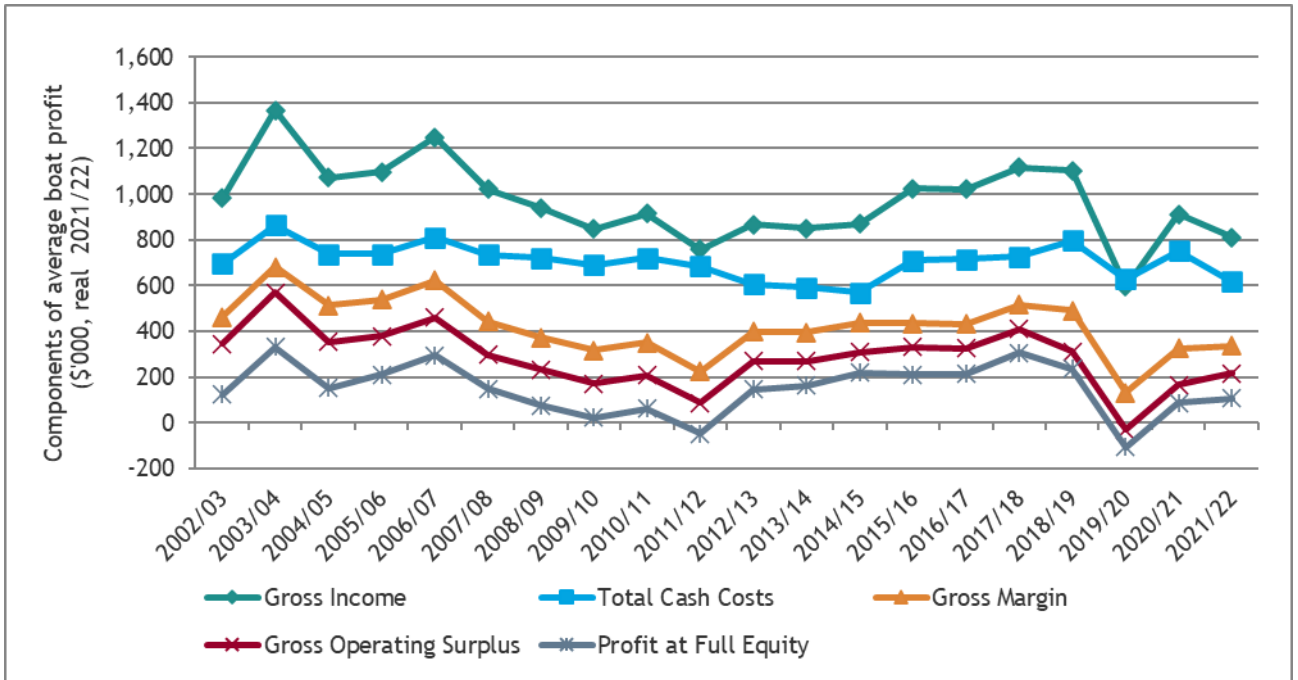
Selected measures of profitability for the Spencer Gulf Prawn Fishery are summarised in Figure 6-8 for the last 20 years. Changes in each of the profitability measures for the fishery were closely related to the average income earned. Profitability followed an overall declining trend despite year to year fluctuations (Figure 6-8).

Figure 6-7 Price and cost indices for the Spencer Gulf Prawn Fishery, 2002/03 to 2021/22



Source: Figure 3-1, Table 3-4 and Appendix Table 3-1 and Appendix Table 3-6

Figure 6-8 Financial performance indicators per boat in the Spencer Gulf Prawn Fishery, 2002/03 to 2021/22 <sup>a</sup>



<sup>a</sup> Estimates of income and profitability measures are expressed in real 2021/22 dollars.

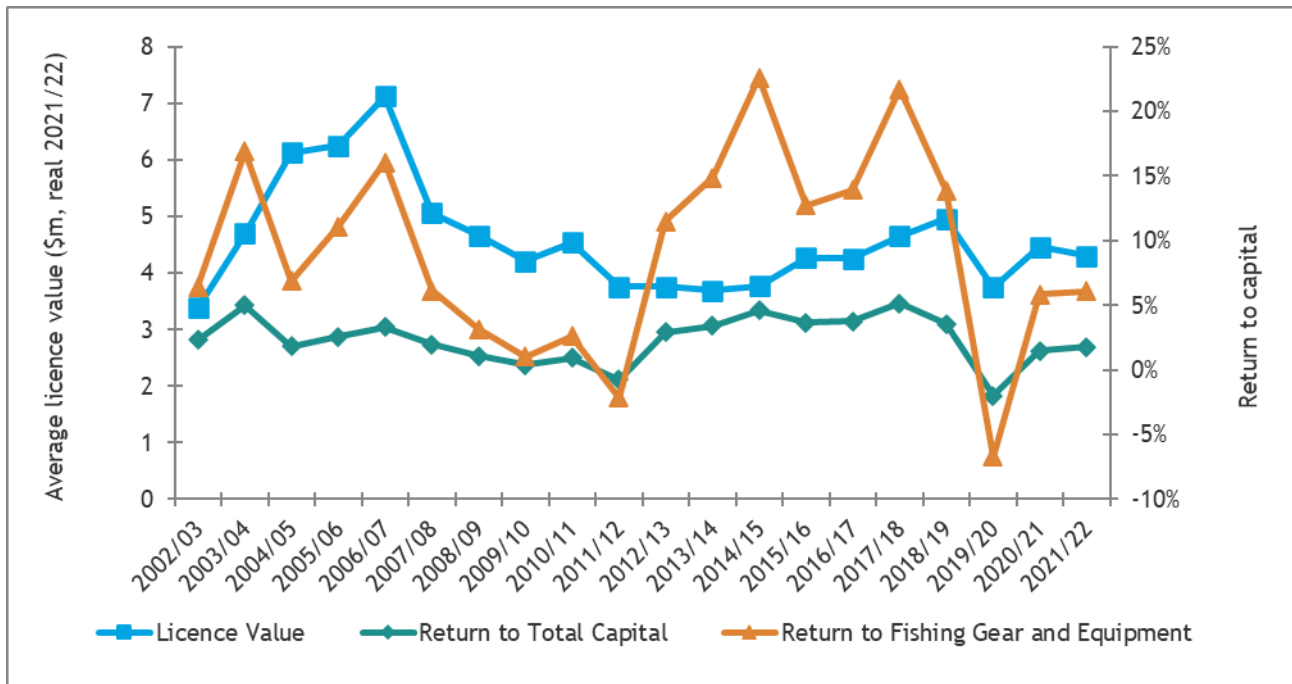
Source: Table 3-4 and Appendix Table 3-1 and Appendix Table 3-6

### Return to capital

Estimates of the average licence value and the rate of return to total capital for the last 20 years are illustrated in Figure 6-9. Capital includes boats, licence/quota, fishing gear, sheds, vehicles and other capital items used as part of the fishing enterprise. The rate of return to capital is calculated to be profit at full equity as a percentage of total capital employed.

The estimated rate of return to total capital for the fishery declined overall despite year to year fluctuations (Figure 6-8). In recent years, the indicator fell significantly to a 20-year low of -2.0 per cent (2019/20), a result of the decreased profitability of the fishery, but improved to 1.8 per cent in 2021/22.

Figure 6-9 Return to capital in the Spencer Gulf Prawn Fishery, 2002/03 to 2021/22 <sup>a</sup>



<sup>a</sup> Estimates of licence value are expressed in real 2021/22 dollars.

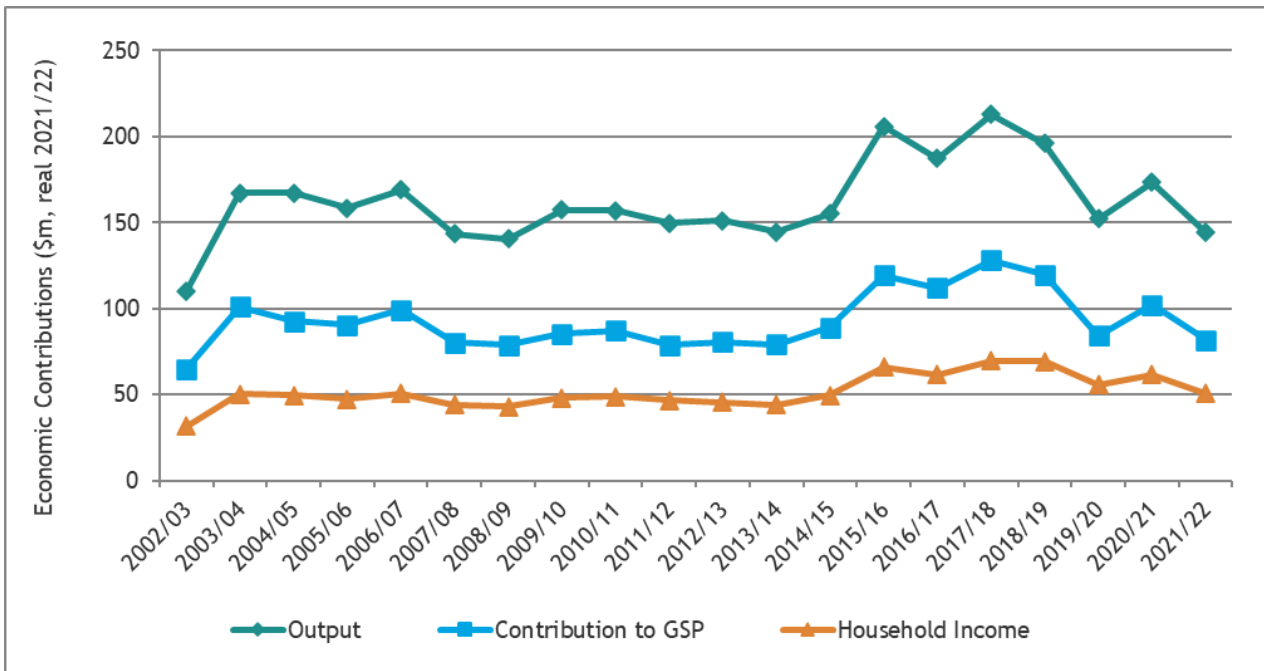
Source: Table 3-4 and Appendix Table 3-1 and Appendix Table 3-6

### 6.4. Contribution to SA Economy

Figure 6-10 and Figure 6-11 illustrate the total economic impact of the fishery on the SA economy for the last 20 years. Total economic impact refers to the direct fishing industry impacts (fishing, processing, etc.) and the indirect impacts on other sectors of the economy.

Changes in total output and contribution to GSP are closely linked to changes in fishery GVP. There has been an overall increase in these indicators between 2002/03 and 2017/18. However, these indicators fell over the last four years due to decreased GVP (Figure 6-10). Both direct and indirect employment followed an increasing trend overall between 2002/03 and 2021/22, despite year to year fluctuations (Figure 6-11).

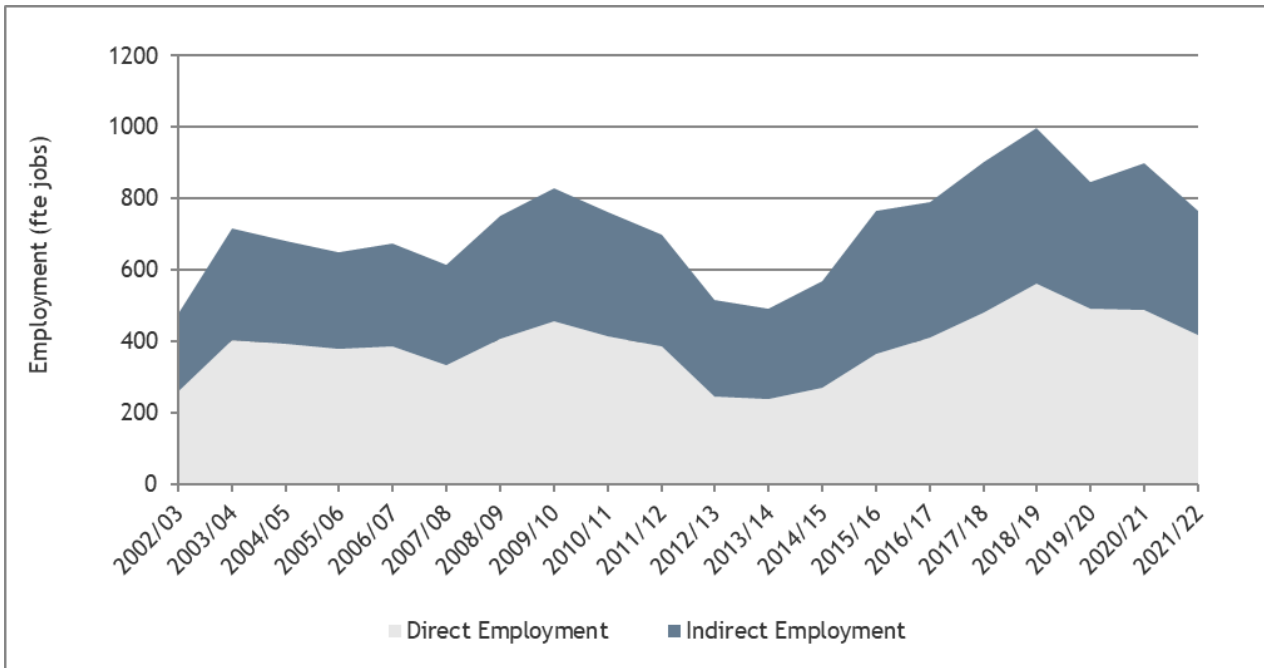
Figure 6-10 Total gross state product, output and household income impact of the Spencer Gulf Prawn Fishery on the SA economy, 2002/03 to 2021/22 <sup>a, b</sup>



<sup>a</sup> Estimates of output, GSP and household income are expressed in real 2021/22 dollars. Estimates for 2016/17 and prior to 2012/13 include the impact of the West Coast Prawn Fishery as well as the Spencer Gulf Prawn Fishery.

Source: Table 3-7 and BDO EconSearch (2022a)

Figure 6-11 Total direct and indirect employment impact of the Spencer Gulf Prawn Fishery on the SA economy, 2002/03 to 2021/22 <sup>a</sup>



<sup>a</sup> See Figure 6-10

<sup>b</sup> Estimates for 2018/19, 2019/20, and 2020/21 have been revised using updated information received in 2021/22.

Source: Table 3-7 and BDO EconSearch (2022a)



## 6.5. Net Economic Return

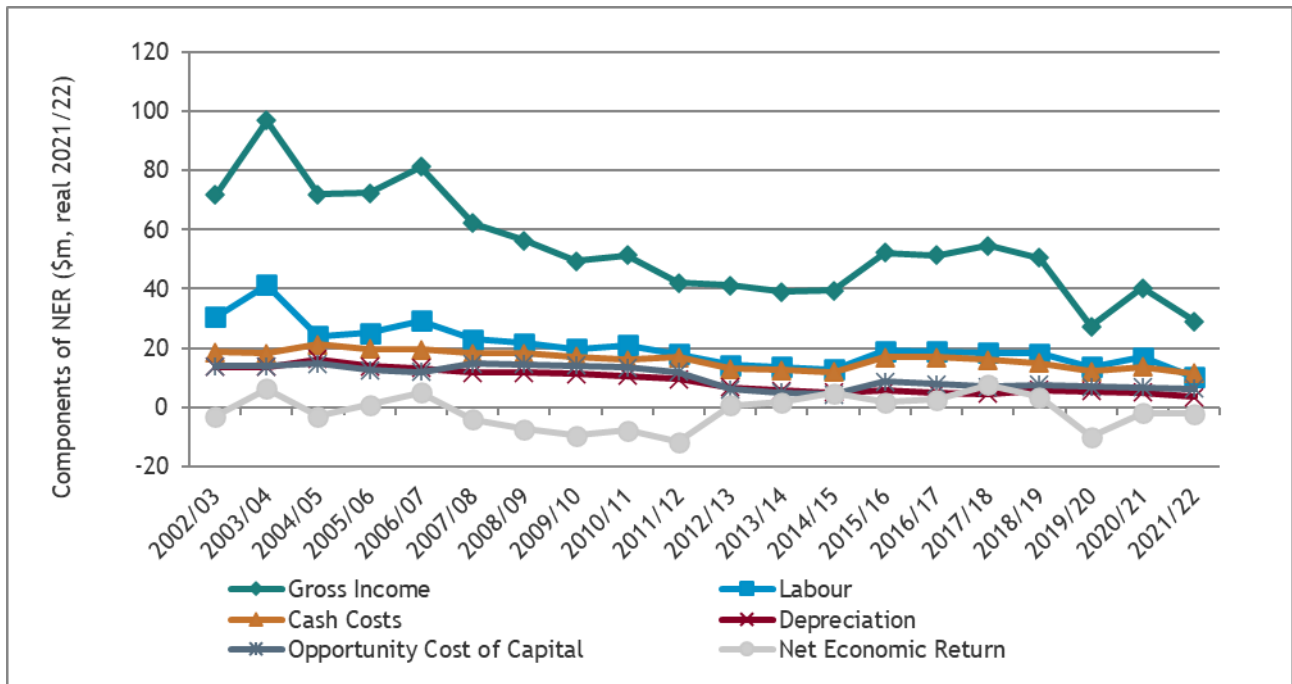
Net economic return (NER) is the return from a fishery after all costs have been met. It is equal to fishing revenue less fishing costs (cost of labour, capital including depreciation, materials and an allowance for “normal” profit). NER is maximised when economic efficiency is maximised. Estimates of the NER generated in the Spencer Gulf Prawn Fishery are summarised in Figure 6-12 for the last 20 years.

NER fluctuated between 2002/03 and 2021/22 but showed no overall trend. Fluctuations in rent are closely linked to fluctuations in fishery GVP (Figure 6-13). Labour costs are also linked to fishery GVP because the majority of fishing businesses pay crew a share of catch.

NER expressed as a percentage of GVP is a useful indicator for analysing a fishery over time and for comparing different fisheries. This indicator is illustrated in Figure 6-13 and has fluctuated over time but has no clear overall trend between 2002/03 and 2021/22.

NER represents a return to the value of licences in the fishery. The aggregate value of licences in the Spencer Gulf Prawn Fishery and the return to aggregate licence value of the fishery are illustrated in Figure 6-14. The return to the aggregate licence value improved overall from -3.8 per cent in 2002/03 to -1.3 per cent in 2021/22, which was only slightly lower than the 20-year average of -1.2 per cent. The overall improvement was due to the slight increase in the NER generated by the fishery despite an increase in the aggregate value of licences (in real terms) since 2002/03 (Figure 6-14).

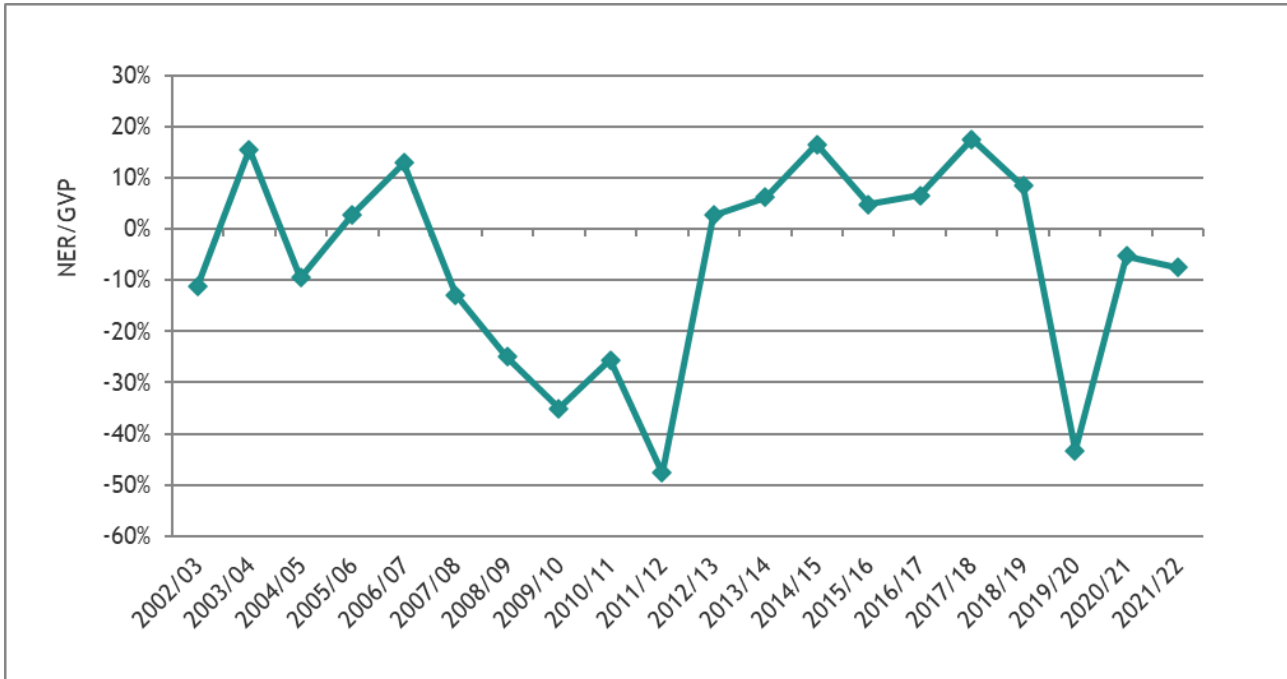
Figure 6-12 Net Economic Return in the Spencer Gulf Prawn Fishery, 2002/03 to 2021/22 (\$m) <sup>a</sup>



<sup>a</sup> All indicators are expressed in real 2021/22 dollars.

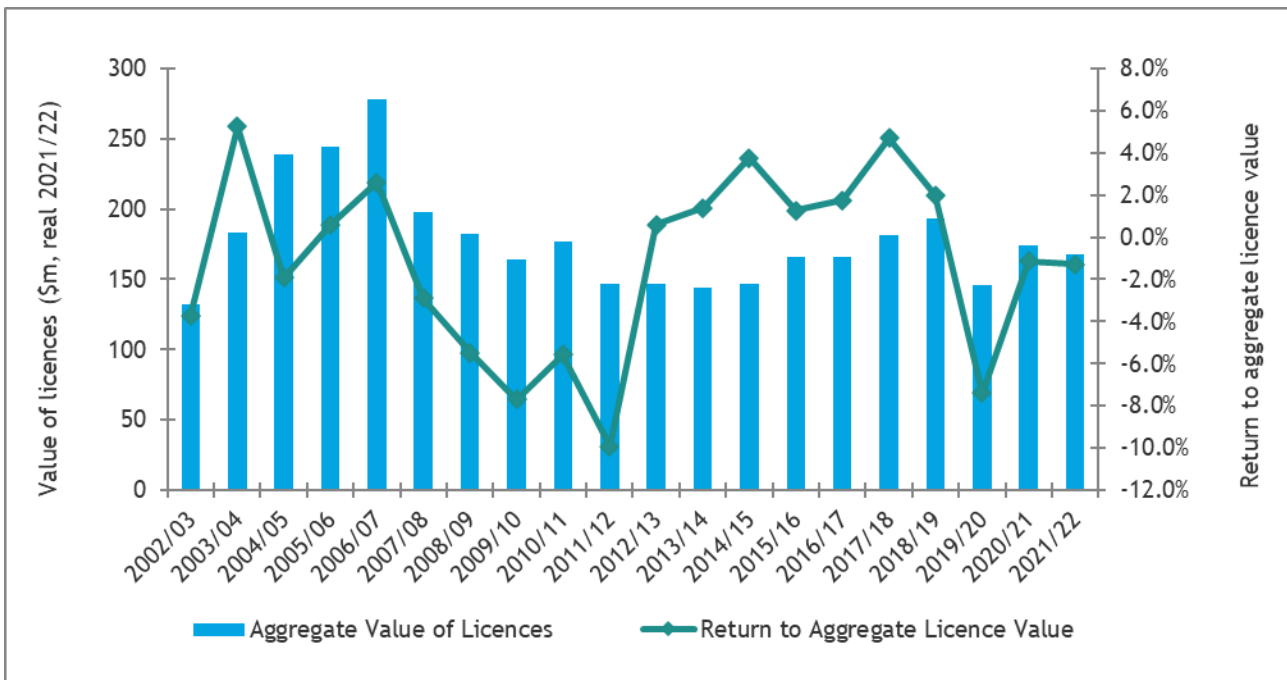
Source: Table 3-9 and Appendix Table 3-1 to Appendix Table 3-6

Figure 6-13 Net Economic Return as a proportion of GDP in the Spencer Gulf Prawn Fishery, 2002/03 to 2021/22



Source: Table 3-2 and Appendix Table 3-1 to Appendix Table 3-6

Figure 6-14 Aggregate value of licences and return to aggregate licence value in the Spencer Gulf Prawn Fishery, 2002/03 to 2021/22 <sup>a, b</sup>



<sup>a</sup> The value of licences represents licence holders' estimates of the value of their fishing licence derived from survey responses. Estimates were based on different survey samples and techniques. Some of the difference between years is, therefore, attributable to sampling variability.

<sup>b</sup> Estimates of licence value are expressed in real 2021/22 dollars.

Source: Table 3-4, Table 3-9 and Appendix Tables 3.1 to 3.4

## REFERENCES

- Australian Bureau of Statistics (ABS) 2022, *Consumer Price Index, Australia*, Cat. No. 6401.0.
- BDO EconSearch 2021, *Input-Output Tables for South Australia and its Regions 2019/20 Update: Technical Report*, report prepared for Department of the Premier and Cabinet, February
- BDO EconSearch 2022a, *Economic Indicators for the Spencer Gulf Prawn Fishery Report, 2020/21*, report prepared for the Department of Primary Industries and Regions, Adelaide, June and previous editions.
- BDO EconSearch 2022b, *Economic Indicators for the Commercial Fisheries of South Australia, Summary Report, 2020/21*, report prepared for the Department of Primary Industries and Regions, Adelaide, June (and previous editions).
- Biosecurity Australia 2007, *Importation of Prawns and Prawn Products - Revised Interim Quarantine Measures*, Biosecurity Australia Policy Memorandum 2007/16.
- CSIRO 2022, *Issue 286 - Science smorgasboard, Worldwide trawling impact revealed*, accessed via <https://ecos.csiro.au/worldwide-trawling-impact-revealed/> on 21/06/2023.
- Department of Agriculture, Forestry and Fisheries (DAFF) 2023 *AGSURF data*, accessed via <https://apps.agriculture.gov.au/agsurf/agsurf.asp> on 19/05/2023.
- Ironmonger, D. 2002, *The Economic Value of Volunteering in South Australia*, report prepared for the Office for Volunteers, Government of South Australia.
- Love Australian Prawns 2019, *About Love Australian Prawns Campaign*, available at: <https://australianprawnmarketing.net/about-love-australian-prawns-campaign/>
- Noell C.J., and Hooper G.E. 2021, *Spencer Gulf Prawn *Penaeus (Melicertus) laticulcatus* Fishery*, SARDI Research Report Series, fishery assessment report prepared for PIRSA Fisheries and Aquaculture, July.
- Noell, C., Beckmann, C., McLeay, L., Kangas, M., and Roelofs, A., 2021, *Status of Australian Fish Stocks Report Western King Prawn*, Fisheries Research and Development Corporation, June.
- PIRSA 2011, *Allocation policy: allocation of access to fisheries resources between fishing sectors*, Department of Primary Industries and Regions (Fisheries and Aquaculture), Adelaide.
- PIRSA 2020, *Management Plan for the South Australian Commercial Spencer Gulf Prawn Fishery*, The South Australian Fisheries Management Series Paper number 78, October.
- Triantafillos L., Brooks K.A., Schirmer J. and Pascoe S., 2014a, *Managing the social dimension of fishing: Part 1 Introduction to social objectives and indicators in fisheries management*, Department of Primary Industries and Regions, Fisheries and Aquaculture, Adelaide.
- Triantafillos L., Brooks K.A., Schirmer J. and Pascoe S., 2014b, *Managing the social dimension of fishing: Part 2 Implementing social objectives and indicators in fisheries management*, Department of Primary Industries and Regions, Fisheries and Aquaculture, Adelaide.
- Tuynman, H and Dylewski, M 2022, *Australian fisheries and aquaculture statistics 2021*, Fisheries Research and Development Corporation, ABARES, Canberra, December.

## Disclaimer

The assignment is a consulting engagement as outlined in the 'Framework for Assurance Engagements', issued by the Auditing and Assurances Standards Board, Section 17. Consulting engagements employ an assurance practitioner's technical skills, education, observations, experiences and knowledge of the consulting process. The consulting process is an analytical process that typically involves some combination of activities relating to: objective-setting, fact-finding, definition of problems or opportunities, evaluation of alternatives, development of recommendations including actions, communication of results, and sometimes implementation and follow-up.

The nature and scope of work has been determined by agreement between BDO and the Client. This consulting engagement does not meet the definition of an assurance engagement as defined in the 'Framework for Assurance Engagements', issued by the Auditing and Assurances Standards Board, Section 10.

Except as otherwise noted in this report, we have not performed any testing on the information provided to confirm its completeness and accuracy. Accordingly, we do not express such an audit opinion and readers of the report should draw their own conclusions from the results of the review, based on the scope, agreed-upon procedures carried out and findings.

## APPENDIX 1 Economic Contribution of the Spencer Gulf Prawn Fishery, 2020/21

Appendix Table 1-1 The economic contribution of the Spencer Gulf Prawn fishing industry in South Australia, 2020/21

Sector	Output		Employment <sup>a, d</sup>		Household Income		Contribution to GSP	
	(\$m)	%	(fte jobs)	%	(\$m)	%	(\$m)	%
<b>Direct effects</b>								
Fishing	35.7	21.9%	182	20.2%	14.3	24.7%	24.3	25.4%
Processing	0.6	0.4%	4	0.5%	0.2	0.4%	0.5	0.5%
Transport	0.0	0.0%	0	0.0%	0.0	0.0%	0.0	0.0%
Retail	22.1	13.6%	175	19.5%	9.8	16.9%	13.0	13.5%
Food services	11.4	7.0%	115	12.8%	4.5	7.7%	6.3	6.6%
Capital expenditure <sup>b</sup>	1.8	1.1%	10	1.2%	0.6	1.1%	0.9	0.9%
<b>Total Direct <sup>c</sup></b>	<b>71.6</b>	<b>43.9%</b>	<b>487</b>	<b>54.1%</b>	<b>29.5</b>	<b>50.8%</b>	<b>44.9</b>	<b>46.9%</b>
<b>Flow-on effects</b>								
Trade	11.1	6.8%	72	8.0%	4.5	7.7%	6.4	6.7%
Manufacturing	11.6	7.1%	34	3.8%	2.2	3.9%	3.5	3.6%
Business Services	13.9	8.5%	88	9.8%	6.6	11.4%	7.6	7.9%
Transport	5.9	3.6%	23	2.6%	1.7	2.9%	2.6	2.7%
Other Sectors	48.9	30.0%	196	21.7%	13.5	23.3%	30.9	32.2%
<b>Total Flow-on <sup>c</sup></b>	<b>91.4</b>	<b>56.1%</b>	<b>413</b>	<b>45.9%</b>	<b>28.5</b>	<b>49.2%</b>	<b>50.9</b>	<b>53.1%</b>
<b>Total <sup>c</sup></b>	<b>163.0</b>	<b>100.0%</b>	<b>900</b>	<b>100.0%</b>	<b>57.9</b>	<b>100.0%</b>	<b>95.9</b>	<b>100.0%</b>
Total/Direct	2.3	-	1.8	-	2.0	-	2.1	-
Total/Tonne	\$88,700	-	0.49	-	\$31,500	-	\$52,100	-

<sup>a</sup> Full-time equivalent jobs. Direct employment in the fishing sector was comprised of 181 full-time and 8 part-time jobs, that is, 189 jobs in aggregate, which was estimated to be equal to 182 fte jobs.

<sup>b</sup> Capital expenditure includes fishing related expenditure (boats, fishing gear and equipment, sheds and buildings, motor vehicles and other equipment) and processing relating expenditure (sheds, buildings and freezers).

<sup>c</sup> Totals may not sum due to rounding.

<sup>d</sup> Employment estimates have been revised using updated information received in 2021/22.

Source: BDO EconSearch analysis

Appendix Table 1-2 The economic contribution of the Spencer Gulf Prawn fishing industry in the Eyre and Western region, 2020/21

Sector	Output		Employment <sup>a, d</sup>		Household Income		Contribution to GRP	
	(\$m)	%	(fte jobs)	%	(\$m)	%	(\$m)	%
<b>Direct effects</b>								
Fishing	35.7	54.1%	182	53.5%	14.3	60.2%	23.7	57.5%
Processing	0.6	0.9%	4	1.1%	0.2	0.8%	0.5	1.1%
Transport	0.0	0.0%	0	0.0%	0.0	0.0%	0.0	0.0%
Retail	2.2	3.4%	18	5.3%	1.0	4.2%	1.3	3.1%
Food services	1.1	1.7%	11	3.3%	0.4	1.7%	0.6	1.5%
Capital expenditure <sup>b</sup>	0.9	1.3%	4	1.3%	0.1	0.5%	0.1	0.4%
<b>Total Direct <sup>c</sup></b>	<b>40.5</b>	<b>61.5%</b>	<b>219</b>	<b>64.5%</b>	<b>16.0</b>	<b>67.4%</b>	<b>26.3</b>	<b>63.7%</b>
<b>Flow-on effects</b>								
Trade	4.0	6.0%	27	7.9%	1.6	6.8%	2.3	5.6%
Manufacturing	1.1	1.6%	4	1.1%	0.2	1.0%	0.3	0.8%
Business Services	2.7	4.0%	15	4.5%	1.2	5.0%	1.4	3.4%
Transport	2.1	3.2%	7	2.2%	0.5	2.3%	1.0	2.3%
Other Sectors	15.6	23.6%	68	19.8%	4.2	17.6%	9.9	24.1%
<b>Total Flow-on <sup>c</sup></b>	<b>25.4</b>	<b>38.5%</b>	<b>121</b>	<b>35.5%</b>	<b>7.8</b>	<b>32.6%</b>	<b>15.0</b>	<b>36.3%</b>
<b>Total <sup>c</sup></b>	<b>65.9</b>	<b>100.0%</b>	<b>340</b>	<b>100.0%</b>	<b>23.8</b>	<b>100.0%</b>	<b>41.2</b>	<b>100.0%</b>
Total/Direct	1.6	-	1.6	-	1.5	-	1.6	-
Total/Tonne	\$35,800	-	0.19	-	\$12,900	-	\$22,400	-

<sup>a</sup> Full-time equivalent jobs. Direct employment in the fishing sector was comprised of 181 full-time and 8 part-time jobs, that is, 189 jobs in aggregate, which was estimated to be equal to 182 fte jobs.

<sup>b</sup> Capital expenditure includes fishing related expenditure (boats, fishing gear and equipment, sheds and buildings, motor vehicles and other equipment) and processing relating expenditure (sheds, buildings and freezers).

<sup>c</sup> Totals may not sum due to rounding.

<sup>d</sup> Employment estimates have been revised using updated information received in 2021/22.

Source: BDO EconSearch analysis

## APPENDIX 2 Summary Economic Indicators for SA Commercial Fisheries

Appendix Table 2-1 Commercial fisheries catch, South Australia, 2001/02 to 2020/21 (tonnes)

Year	Abalone	GSV Prawns <sup>a</sup>	SGWC Prawns <sup>a</sup>	Sth'n Zone Rock Lobster <sup>a</sup>	Nth'n Zone Rock Lobster <sup>a</sup>	Blue Crabs	Lakes and Coorong <sup>b</sup>	Sardines	Marine Scalefish	Misc <sup>c</sup>	Total SA Fisheries <sup>d</sup>
2001/02	850	322	2,309	1,717	675	481	1,640	12,165	4,801	-	24,960
2002/03	890	232	1,508	1,766	595	515	1,979	21,741	4,243	-	33,469
2003/04	879	172	1,958	1,896	504	559	2,180	33,160	4,221	-	45,529
2004/05	902	213	1,960	1,897	446	584	2,277	56,952	3,857	-	69,089
2005/06	896	175	1,891	1,889	476	600	2,440	28,626	3,234	-	40,227
2006/07	883	209	2,024	1,895	492	617	2,443	30,355	2,855	-	41,773
2007/08	889	229	2,088	1,850	459	625	2,146	29,692	2,925	28	40,931
2008/09	837	273	1,915	1,407	403	604	2,023	27,850	2,998	28	38,338
2009/10	855	250	2,445	1,243	310	539	1,916	36,573	3,330	24	47,485
2010/11	815	178	2,115	1,244	313	591	1,681	33,220	3,068	24	43,249
2011/12	822	125	1,840	1,242	307	611	1,641	36,962	3,208	25	46,783
2012/13	875	0	1,881	1,234	325	511	1,811	35,065	2,603	28	44,333
2013/14	661	0	1,805	1,247	331	571	1,852	33,197	2,302	22	41,988
2014/15	744	249	1,848	1,238	321	576	1,598	36,020	2,582	22	45,198
2015/16	625	218	2,357	1,244	347	625	1,646	41,103	2,550	21	50,736
2016/17	743	225	2,205	1,238	320	627	1,847	39,745	2,519	22	49,491
2017/18	700	237	2,197	1,246	308	603	1,873	43,293	2,303	22	52,782
2018/19	658	212	2,121	1,245	294	616	1,861	40,041	2,099	22	49,169
2019/20	509	133	1,743	1,203	226	620	1,978	39,889	2,130	17	48,448
2020/21	493	110	1,837	1,275	251	592	1,926	38,024	1,689	18	46,215

<sup>a</sup> Excludes retained by-catch of Octopus and Southern Calamari.

<sup>b</sup> The River fishery was closed from July 2003. There are 6 River fishery licences with access to non-native species and their production is included in this table.

<sup>c</sup> Prior to 2007/08 catch from the Miscellaneous Fishery was included in the Marine Scalefish Fishery.

<sup>d</sup> Excludes retained by-catch of Octopus, Southern Calamari and bugs (49t of Octopus, 45t of Southern Calamari and 4t of Bugs in 2020/21) from the Rock Lobster and Prawn Fisheries. Excludes catch from Charter Boat Fishery, aquaculture and south east non-trawl and deep water trawl Commonwealth Fisheries.

Source: BDO EconSearch (2022b)

Appendix Table 2-2 Commercial fisheries gross value of production, South Australia, 2001/02 to 2020/21 (\$m)

Year	Abalone	GSV Prawns <sup>a</sup>	SGWC Prawns <sup>a</sup>	Sth'n Zone Rock Lobster <sup>a</sup>	Nth'n Zone Rock Lobster <sup>a</sup>	Blue Crabs	Lakes and Coorong <sup>b</sup>	Sardines	Marine Scalefish	Misc <sup>c</sup>	Charter Boat	Total SA Fisheries <sup>d</sup>
2001/02	54	9	62	98	41	5	7	13	30	-	-	319
2002/03	54	6	41	96	28	5	7	27	31	-	-	296
2003/04	46	5	58	72	18	5	8	33	33	-	-	277
2004/05	46	5	45	77	17	5	8	41	30	-	-	274
2005/06	46	4	46	90	21	7	8	22	24	-	6	275
2006/07	42	4	53	106	24	7	10	25	26	-	6	305
2007/08	40	4	41	98	21	7	10	21	26	1	5	274
2008/09	41	4	38	108	25	7	11	22	27	1	5	290
2009/10	35	3	34	87	19	5	8	28	28	1	6	254
2010/11	33	3	36	80	17	6	8	23	26	1	5	238
2011/12	34	2	29	93	20	6	9	24	27	1	6	252
2012/13	34	0	32	82	18	6	11	24	28	1	6	241
2013/14	25	0	31	99	22	7	11	21	24	1	5	246
2014/15	28	5	32	112	25	7	9	24	26	1	4	272
2015/16	24	4	42	124	27	8	9	28	24	2	4	297
2016/17	30	5	42	108	22	9	10	26	25	2	4	281
2017/18	29	5	46	103	26	9	12	28	24	2	4	287
2018/19	30	4	43	115	26	9	14	27	21	2	3	295
2019/20	22	2	23	106	19	9	13	27	20	2	2	247
2020/21	18	2	36	71	12	8	14	24	19	1	3	209

<sup>a</sup> Excludes retained by-catch of Octopus and Southern Calamari.

<sup>b</sup> The River fishery was closed from July 2003. There are 6 River fishery licences with access to non-native species and their production is included in this table.

<sup>c</sup> Prior to 2007/08 catch from the Miscellaneous Fishery was included in the Marine Scalefish Fishery.

<sup>d</sup> Excludes retained by-catch of Octopus, Southern Calamari and bugs (\$433,000 of Octopus, \$791,000 of Southern Calamari and \$66,000 of Bugs in 2020/21) from the Rock Lobster and Prawn Fisheries. Excludes catch of aquaculture and south east non-trawl, tuna, deep water trawl Commonwealth Fisheries. All values are expressed in real 2020/21 dollars.

Source: BDO EconSearch (2022b)



Appendix Table 2-3 Cost of management in South Australian commercial fisheries, 2020/21

	Licence Fees	GVP	Fees/ GVP	Catch <sup>a</sup>	Fees/ Catch	Licence Holders	Fees/ Licence
	(\$'000)	(\$'000)	(%)	(t)	(\$/kg)	(no.)	(\$/licence)
Abalone	2,431	18,337	13.3%	493	\$4.93	34	\$71,505
Charter Boats <sup>b</sup>	180	2,907	6.2%	12,077	\$14.87	82	\$2,191
GSV Prawns	410	2,093	19.6%	110	\$3.73	10	\$40,991
SG Prawns <sup>c</sup>	1,055	35,653	3.0%	1,837	\$0.57	39	\$27,049
Sth'n Zone Rock Lobster	3,444	71,299	4.8%	1,275	\$2.70	180	\$19,131
Nth'n Zone Rock Lobster	1,601	11,643	13.8%	251	\$6.38	63	\$25,414
Blue Crabs	320	8,410	3.8%	592	\$0.54	9	\$35,565
Lakes and Coorong	704	13,721	5.1%	1,926	\$0.37	36	\$19,562
Marine Scalefish <sup>d</sup>	1,973	19,103	10.3%	1,689	\$1.17	305	\$6,469
Miscellaneous	119	1,484	8.0%	18	\$6.60	15	\$7,916
Sardines	893	23,955	3.7%	38,024	\$0.02	14	\$63,769
<b>Total SA</b>	<b>13,129</b>	<b>208,604</b>	<b>6.3%</b>	<b>46,215</b>	<b>\$0.28</b>	<b>787</b>	<b>\$16,683</b>

<sup>a</sup> Total catch for the Charter Boat Fishery is the total number of clients rather than total volume of catch and has therefore been excluded from the total catch for all SA commercial fisheries.

<sup>b</sup> Management costs for the Charter Boat Fishery are reported per client rather than per kg of catch.

<sup>c</sup> Excludes West Coast Prawn Fishery.

<sup>d</sup> Licence fees include access/entitlement fees paid by rock lobster and Lakes and Coorong licence holders. Number of licence holders and average fee per licence holder relates only to Marine Scalefish licence holders and excludes access/entitlement holders from other fisheries.

Source: BDO EconSearch (2022b)

Appendix Table 2-4 Financial performance in South Australian commercial fisheries, 2020/21, (average per boat) <sup>a</sup>

	Abalone	Charter Boats	GSV Prawns	SG Prawns	Sth'n Zone Rock Lob	Nth'n Zone Rock Lob	Blue Crabs <sup>a</sup>	Marine Scalefish	Sardine	Lakes and Coorong
(1) Total Boat Gross Income	585,788	95,682	418,600	858,836	440,222	250,721	8,409,508	122,224	1,726,433	517,480
Variable Costs										
Fuel	15,214	16,015	60,732	80,931	24,940	24,264	530,977	13,025	108,435	16,878
Repairs &	24,130	17,007	41,471	97,439	35,796	17,104	438,956	8,151	130,409	12,430
Bait/Ice	527	3,525	0	5,001	14,584	13,170	134,934	2,411	1,591	1,542
Provisions	3,806	854	2,477	4,605	1,067	6,159	29,862	980	1,385	610
Labour - paid	185,740	6,185	212,626	361,846	158,999	113,626	2,462,702	12,639	432,268	66,979
(2) Labour - unpaid	1,342	13,126	9,867	2,001	7,280	15,902	9,604	18,510	2,801	14,746
Other	3,593	2,967	37,985	367	1,312	3,581	1,781	1,568	427	1,123
(3) Total Variable Costs	234,353	59,679	365,158	552,190	243,978	193,805	3,608,815	57,283	677,316	114,309
Fixed Costs										
Licence Fee	72,620	4,185	81,983	27,634	23,122	26,786	343,300	5,769	68,666	16,136
Insurance	8,283	4,179	9,796	20,831	8,734	7,461	198,233	3,036	39,123	5,302
(4) Interest	18,080	1,141	4,154	38,018	12,378	3,411	388,980	4,239	86,292	4,012
(5) Labour - unpaid	13,418	17,493	23,796	3,419	10,693	3,971	127,993	5,041	24,916	9,522
(6) Leasing	0	0	0	5,365	4,452	42,432	320,184	0	0	7,111
Legal & Accounting	9,191	2,030	6,579	4,872	6,764	4,206	26,823	2,292	5,872	4,537
Telephone etc.	2,451	1,296	1,805	2,995	2,518	1,032	5,696	1,266	1,098	1,911
Slipping & Mooring	1,271	2,193	20,061	21,804	6,383	5,825	70,083	1,629	7,704	276
Travel	5,482	659	0	570	1,363	1,598	3,561	594	883	927
Office & Admin	6,229	7,027	3,869	30,556	6,869	11,429	144,778	7,369	17,988	8,919
(7) Total Fixed Costs	137,025	40,203	152,042	156,062	83,275	108,151	1,629,632	31,234	252,542	58,654
(8) Total Boat Cash Costs (3 + 7)	371,377	99,882	517,201	708,252	327,254	301,957	5,238,447	88,517	929,858	172,962
Boat Gross Margin (1 - 3)	351,435	36,003	53,442	306,646	196,243	56,916	4,800,692	64,941	1,049,117	403,171
(9) Total Unpaid Labour (2 + 5)	14,760	30,618	33,662	5,420	17,973	19,872	137,597	23,550	27,717	24,268
Gross Operating Surplus (1- 8+ 9)	229,170	26,418	-64,938	156,004	130,942	-31,363	3,308,657	57,258	824,292	368,786
(10) Boat Cash Income (1 - 8)	214,411	-4,200	-98,601	150,584	112,968	-51,235	3,171,061	33,707	796,575	344,518
(11) Depreciation	53,300	22,687	73,852	110,310	41,973	47,587	740,508	19,848	328,118	54,278
(12) Boat Business Profit (10 - 11)	161,111	-26,887	-172,453	40,274	70,995	-98,823	2,430,552	13,859	468,457	290,239
(13) Profit at Full Equity (12 + 4 + 6)	179,191	-25,746	-168,299	83,656	87,825	-52,980	3,139,717	18,097	554,748	301,363
Boat Capital										
(14) Fishing Gear & Licence Value	369,703	273,514	1,136,412	1,435,546	512,056	514,497	8,036,811	150,058	3,132,734	432,446
(15) Total Boat Capital	6,326,294	7,750	2,000,000	4,198,095	5,257,050	2,296,864	47,285,237	226,097	6,076,511	1,469,734
(15) Total Boat Capital	6,695,997	281,264	3,136,412	5,633,641	5,769,107	2,811,360	55,322,048	376,155	9,209,245	1,902,180
Rate of Return on										
Fishing Gear & Equip (13 / 14 * 100)	48.5%	-9.4%	-14.8%	6%	17%	-10.3%	39.1%	12.1%	17.7%	69.7%
Rate of Return on										
Total Boat Capital (13 / 15 * 100)	2.7%	-9.2%	-5.4%	1.5%	1.5%	-1.9%	5.7%	4.8%	6.0%	15.8%

<sup>a</sup> Excludes aquaculture and Commonwealth fisheries including; the Southern Eastern Scalefish and Shark fishery, Southern Bluefin Tuna fishery, Great Australian Bight fishery, Western Skipjack fishery, the Western Tuna and Billfish fishery

<sup>b</sup> Estimates of financial performance for the blue crab fishery have been presented on a whole of fishery basis.

Source: BDO EconSearch (2022b)

Appendix Table 2-5 Costs as a percentage of total cash costs in South Australian commercial fisheries, 2020/21 <sup>a</sup>

	Abalone	Charter Boats	Gulf St Vincent Prawns	Spencer Gulf Prawns	Sth'n Zone Rock Lob	Nth'n Zone Rock Lob	Blue Crabs	Marine Scalefish	Sardines	Lakes and Coorong
<b>Variable Costs</b>										
Fuel	4%	16%	12%	11%	8%	8%	10%	15%	12%	10%
R&M	6%	17%	8%	14%	11%	6%	8%	9%	14%	7%
Bait/Ice	0%	4%	0%	1%	4%	4%	3%	3%	0%	1%
Provisions	1%	1%	0%	1%	0%	2%	1%	1%	0%	0%
Labour - paid	50%	6%	41%	51%	49%	38%	47%	14%	46%	39%
Labour - unpaid	0%	13%	2%	0%	2%	5%	0%	21%	0%	9%
Other	1%	3%	7%	0%	0%	1%	0%	2%	0%	1%
<b>Fixed Costs</b>										
Licence Fee	20%	4%	16%	4%	7%	9%	7%	7%	7%	9%
Insurance	2%	4%	2%	3%	3%	2%	4%	3%	4%	3%
Interest	5%	1%	1%	5%	4%	1%	7%	5%	9%	2%
Labour - unpaid	4%	18%	5%	0%	3%	1%	2%	6%	3%	6%
Leasing	0%	2%	0%	1%	1%	14%	6%	0%	0%	4%
Legal & Accounting	2%	1%	1%	1%	2%	1%	1%	3%	1%	3%
Telephone etc.	1%	2%	0%	0%	1%	0%	0%	1%	0%	1%
Slipping & Mooring	0%	1%	4%	3%	2%	2%	1%	2%	1%	0%
Travel	1%	7%	0%	0%	0%	1%	0%	1%	0%	1%
Office & Admin	2%	40%	1%	4%	2%	4%	3%	8%	2%	5%
<b>Total Variable Costs</b>	<b>63%</b>	<b>60%</b>	<b>71%</b>	<b>78%</b>	<b>75%</b>	<b>64%</b>	<b>69%</b>	<b>65%</b>	<b>73%</b>	<b>66%</b>
<b>Total Fixed Costs</b>	<b>37%</b>	<b>40%</b>	<b>29%</b>	<b>22%</b>	<b>25%</b>	<b>36%</b>	<b>31%</b>	<b>35%</b>	<b>27%</b>	<b>34%</b>
<b>Total Cash Costs</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

<sup>a</sup> Excludes aquaculture and Commonwealth fisheries including; the Southern Eastern Scalefish and Shark fishery, Southern Bluefin Tuna fishery, Great Australian Bight fishery, Western Skipjack fishery, the Western Tuna and Billfish fishery.

Source: Derived from BDO EconSearch (2022b)

Appendix Table 2-6 Economic contributions of South Australian commercial fisheries, 2020/21 <sup>a,b</sup>

	Abalone	Charter Boats	Gulf St Vincent Prawn	SG Prawns	Sth'n Zone Rock Lob	Nth'n Zone Rock Lob	Blue Crabs	Marine Scalefish	Sardines	Lakes and Coorong	All Fisheries
<b>Output (\$m)</b>											
Direct											
Fishing	18.3	2.9	2.1	35.7	71.7	11.7	8.4	19.1	24.0	13.7	207.6
Downstream	15.2	5.7	2.2	35.9	29.8	6.1	7.5	8.7	2.2	6.6	119.9
All other sectors	56.9	14.4	7.3	91.4	125.3	29.5	18.4	57.3	22.1	19.5	442.3
<b>Total</b>	<b>90.5</b>	<b>23.0</b>	<b>11.6</b>	<b>163.0</b>	<b>226.8</b>	<b>47.3</b>	<b>34.4</b>	<b>85.1</b>	<b>48.3</b>	<b>39.8</b>	<b>769.8</b>
Total/Direct	2.7	2.7	2.7	2.3	2.2	2.7	2.2	3.1	1.8	2.0	2.4
Total/Tonne (\$)	\$183,500	\$1,900	\$105,600	\$88,700	\$172,300	\$182,500	\$58,000	\$50,300	\$1,200	\$24,900	\$16,000
<b>Contribution to GSP (\$m)</b>											
Direct											
Fishing	13.9	1.2	0.9	24.3	51.1	3.8	6.5	7.9	18.7	11.3	139.6
Downstream	13.8	2.8	1.3	20.6	14.8	3.0	3.8	4.2	1.1	3.2	68.6
All other sectors	18.1	8.1	4.1	50.9	71.5	16.8	10.4	32.8	12.5	11.1	236.4
<b>Total</b>	<b>45.9</b>	<b>12.1</b>	<b>6.3</b>	<b>95.9</b>	<b>137.4</b>	<b>23.7</b>	<b>20.8</b>	<b>44.8</b>	<b>32.3</b>	<b>25.5</b>	<b>444.6</b>
Total/Direct	1.7	3.1	2.9	2.1	2.1	3.5	2.0	3.7	1.6	11.1	2.1
Total/Tonne (\$)	\$93,000	\$1,000	\$56,900	\$52,100	\$104,400	\$91,300	\$35,000	\$26,500	\$800	\$26	\$9,200
<b>Employment (fte jobs)</b>											
Direct											
Fishing	51	32	18	116	327	89	29	211	82	109	1,064
Downstream	125	29	19	305	194	39	58	55	13	40	876
All other sectors	148	68	33	413	584	139	82	274	104	88	1,934
<b>Total</b>	<b>323</b>	<b>128</b>	<b>70</b>	<b>834</b>	<b>1,105</b>	<b>268</b>	<b>169</b>	<b>540</b>	<b>199</b>	<b>238</b>	<b>3,874</b>
Total/Direct	1.8	2.1	1.9	2.0	2.1	2.1	2.0	2.0	2.1	1.6	2.0
Total/Tonne	0.7	0.0	0.6	0.5	0.8	1.0	0.3	0.3	0.0	0.1	0.1
<b>Household Income (\$m)</b>											
Direct											
Fishing	6.8	0.6	1.2	14.3	28.0	6.2	2.6	8.7	6.4	3.3	78.2
Downstream	6.6	1.6	0.9	15.1	11.0	2.2	2.7	3.0	0.8	2.3	46.1
All other sectors	10.4	4.9	2.4	28.5	41.2	9.8	5.9	19.8	7.2	6.5	136.4
<b>Total</b>	<b>23.8</b>	<b>7.1</b>	<b>4.5</b>	<b>57.9</b>	<b>80.1</b>	<b>18.3</b>	<b>11.2</b>	<b>31.5</b>	<b>14.3</b>	<b>12.0</b>	<b>260.7</b>
Total/Direct	1.8	3.2	2.1	2.0	2.1	2.2	2.1	2.7	2.0	2.2	2.1
Total/Tonne (\$)	\$48,200	\$500	\$41,100	\$31,500	\$60,800	\$70,400	\$18,800	\$18,600	\$300	\$7,500	\$5,400

<sup>a</sup> Excludes aquaculture and Commonwealth fisheries including; the Southern Eastern Scalefish and Shark fishery, Southern Bluefin Tuna fishery, Great Australian Bight fishery, Western Skipjack fishery, the Western Tuna and Billfish fishery.

<sup>b</sup> Downstream activities include net value of processing, transport services and retail/food services trade.

Source: BDO EconSearch (2022b)

Appendix Table 2-7 Net Economic Return in South Australian commercial fisheries, 2020/21 (\$m)

	Abalone	GSV Prawns	SGWC Prawns	Sth'n Zone Rock Lob	Nth'n Zone Rock Lob	Blue Crabs	Marine Scalefish	Sardines	Lakes and Coorong	All Fisheries <sup>a</sup>
Gross Income	18.3	2.1	35.7	71.7	11.7	8.4	19.1	24.0	13.7	204.6
Less Labour	6.3	1.2	15.0	28.8	6.2	2.6	5.7	6.4	2.4	74.6
Less Materials & Services	4.8	1.3	12.1	21.7	5.7	1.9	9.0	5.3	2.1	64.0
Less Depreciation	1.7	0.4	4.5	6.8	2.2	0.7	3.1	4.6	1.4	25.4
Less Opportunity Cost of Capital (@10%)	1.2	0.6	5.8	8.3	2.4	0.8	2.3	4.3	1.1	27.0
<b>NER</b>	<b>4</b>	<b>-1</b>	<b>-2</b>	<b>6</b>	<b>-5</b>	<b>2</b>	<b>-1</b>	<b>3</b>	<b>7</b>	<b>14</b>
<b>NER/GVP</b>	<b>24%</b>	<b>-64%</b>	<b>-5%</b>	<b>8%</b>	<b>-42%</b>	<b>28%</b>	<b>-5%</b>	<b>14%</b>	<b>49%</b>	<b>5%</b>

<sup>a</sup> Excludes aquaculture and Commonwealth fisheries including; the Southern Eastern Scalefish and Shark fishery, Southern Bluefin Tuna fishery, Great Australian Bight fishery, Western Skipjack fishery, the Western Tuna and Billfish fishery.

Source: BDO EconSearch (2022b)

## APPENDIX 3 Financial Performance, 2002/03 to 2018/19

Appendix Table 3-1 Financial performance in the Spencer Gulf Prawn Fisheries, 2002/03 to 2004/05 (average per boat)<sup>a</sup>

	2002/03		2003/04		2004/05	
	Average per boat	Share of TBCC <sup>b</sup>	Average per boat	Share of TBCC <sup>b</sup>	Average per boat	Share of TBCC <sup>b</sup>
(1) Total Boat Gross Income	\$616,249		\$882,019		\$708,081	
Variable Costs						
Fuel	\$42,537	10%	\$43,921	8%	\$62,440	13%
Repairs & Maintenance <sup>c</sup>	\$39,972	9%	\$41,819	7%	\$53,514	11%
Refrigeration expenses	\$0	0%	\$0	0%	\$0	0%
Provisions	\$5,427	1%	\$5,677	1%	\$3,875	1%
Labour - paid	\$224,175	51%	\$333,183	60%	\$223,342	46%
(2) Labour - unpaid <sup>d</sup>	\$9,671	2%	\$14,373	3%	\$5,808	1%
Other	\$3,066	1%	\$3,159	1%	\$20,659	4%
(3) Total Variable Costs	\$324,848	74%	\$442,132	79%	\$369,638	76%
Fixed Costs						
Licence Fee	\$16,620	4%	\$17,953	3%	\$20,805	4%
Insurance	\$12,039	3%	\$12,402	2%	\$19,179	4%
(4) Interest	\$14,812	3%	\$15,197	3%	\$41,275	8%
(5) Labour - unpaid <sup>d</sup>	\$28,492	7%	\$29,587	5%	\$8,275	2%
(6) Leasing	-		-		-	
Legal & Accounting	\$14,414	3%	\$14,849	3%	\$7,568	2%
Telephone etc.	\$6,288	1%	\$6,478	1%	\$5,717	1%
Slipping, Mooring and Boat Survey	\$10,114	2%	\$10,419	2%	\$6,106	1%
Travel	\$3,538	1%	\$3,644	1%	\$2,635	1%
Office & Admin	\$5,503	1%	\$5,669	1%	\$7,112	1%
(7) Total Fixed Costs	\$111,820	26%	\$116,197	21%	\$118,672	24%
(8) Total Boat Cash Costs (3 + 7)	\$436,668	100%	\$558,329	100%	\$488,310	100%
Boat Gross Margin (1 - 3)	\$291,401		\$439,887		\$338,443	
(9) Total Unpaid Labour (2 + 5)	\$38,163		\$43,960		\$14,084	
Gross Operating Surplus (1 - 8 + 9)	\$217,743		\$367,649		\$233,855	
(10) Boat Cash Income (1 - 8)	\$179,581		\$323,690		\$219,771	
(11) Depreciation	\$117,102		\$124,002		\$160,582	
(12) Boat Business Profit (10 - 11)	\$62,479		\$199,687		\$59,189	
(13) Profit at Full Equity (12 + 4)	\$77,291		\$214,884		\$100,464	
Boat Capital						
(14) Fishing Gear & Equip	\$1,199,577		\$1,270,264		\$1,455,947	
Licence Value	\$2,121,727		\$3,036,763		\$4,040,909	
(15) Total Boat Capital	\$3,321,303		\$4,307,027		\$5,496,856	
Rate of Return on Fishing Gear & Equip (13 / 14 * 100)	6.4%		16.9%		6.9%	
Rate of Return on Total Boat Capital (13 / 15 * 100)	2.3%		5.0%		1.8%	

<sup>a</sup> Estimates of financial performance for the years 2002/03 and 2003/04 are based on the 2002 licence holder survey and those for 2004/05 are based on the 2005 licence holder survey. All figures are presented in nominal terms.

<sup>b</sup> Total boat cash costs.

<sup>c</sup> Repairs and maintenance costs have been classified as a variable cost although it is noted that some of these costs may be fixed (e.g. regulated maintenance).

<sup>d</sup> Unpaid labour was divided between variable (time spent fishing and on repairs and maintenance) and fixed (management and administrative duties) based on survey responses.

Source: BDO EconSearch (2022a)

Appendix Table 3-2 Financial performance in the Spencer Gulf Prawn Fisheries, 2005/06 to 2007/08 (average per boat)<sup>a</sup>

	2005/06		2006/07		2007/08	
	Average per boat	Share of TBCC <sup>b</sup>	Average per boat	Share of TBCC <sup>b</sup>	Average per boat	Share of TBCC <sup>b</sup>
(1) Total Boat Gross Income	\$750,619		\$870,345		\$744,231	
Variable Costs						
Fuel	\$56,862	11%	\$57,885	10%	\$93,586	17%
Repairs & Maintenance <sup>c</sup>	\$47,923	9%	\$48,966	9%	\$35,031	7%
Refrigeration expenses	\$0	0%	\$0	0%	\$0	0%
Provisions	\$3,470	1%	\$3,545	1%	\$7,682	1%
Labour - paid	\$245,681	49%	\$296,008	52%	\$265,544	50%
(2) Labour - unpaid <sup>d</sup>	\$6,389	1%	\$7,698	1%	\$1,858	0%
Other	\$21,648	4%	\$22,019	4%	\$16,332	3%
(3) Total Variable Costs	\$381,973	76%	\$436,121	77%	\$420,034	78%
Fixed Costs						
Licence Fee	\$22,750	4%	\$24,934	4%	\$24,196	5%
Insurance	\$20,097	4%	\$20,441	4%	\$18,575	3%
(4) Interest	\$41,784	8%	\$44,842	8%	\$41,614	8%
(5) Labour - unpaid <sup>d</sup>	\$8,587	2%	\$8,923	2%	\$8,222	2%
(6) Leasing	-		-		-	
Legal & Accounting	\$7,930	2%	\$8,066	1%	\$9,876	2%
Telephone etc.	\$5,991	1%	\$6,093	1%	\$3,458	1%
Slipping, Mooring and Boat Survey	\$6,399	1%	\$6,508	1%	\$2,732	1%
Travel	\$2,761	1%	\$2,808	0%	\$1,432	0%
Office & Admin	\$7,453	1%	\$7,580	1%	\$6,063	1%
(7) Total Fixed Costs	\$123,751	24%	\$130,196	23%	\$116,167	22%
(8) Total Boat Cash Costs (3 + 7)	\$505,723	100%	\$566,317	100%	\$536,202	100%
Boat Gross Margin (1 - 3)	\$368,647		\$434,224		\$324,196	
(9) Total Unpaid Labour (2 + 5)	\$14,976		\$16,621		\$10,080	
Gross Operating Surplus (1 - 8 + 9)	\$259,872		\$320,649		\$218,109	
(10) Boat Cash Income (1 - 8)	\$244,896		\$304,028		\$208,029	
(11) Depreciation	\$142,871		\$142,093		\$141,522	
(12) Boat Business Profit (10 - 11)	\$102,025		\$161,935		\$66,507	
(13) Profit at Full Equity (12 + 4)	\$143,809		\$206,777		\$108,121	
Boat Capital						
(14) Fishing Gear & Equip	\$1,295,365		\$1,288,315		\$1,765,646	
Licence Value	\$4,283,669		\$4,966,927		\$3,690,625	
(15) Total Boat Capital	\$5,579,034		\$6,255,242		\$5,456,271	
Rate of Return on Fishing Gear & Equip (13 / 14 * 100)	11.1%		16.1%		6.1%	
Rate of Return on Total Boat Capital (13 / 15 * 100)	2.6%		3.3%		2.0%	

<sup>a</sup> Estimates of financial performance for the years 2005/06 and 2006/07 are based on the 2005 licence holder survey and those for the year 2007/08 are based on the 2008 licence holder survey. All figures are presented in nominal terms.

<sup>b-d</sup> See Appendix Table 3-1 footnotes.

Source: BDO EconSearch (2022a)

Appendix Table 3-3 Financial performance in the Spencer Gulf Prawn Fisheries, 2008/09 to 2010/11 (average per boat)<sup>a</sup>

	2008/09		2009/10		2010/11	
	Average per boat	Share of TBCC <sup>b</sup>	Average per boat	Share of TBCC <sup>b</sup>	Average per boat	Share of TBCC <sup>b</sup>
(1) Total Boat Gross Income	\$695,782		\$645,279		\$723,316	
Variable Costs						
Fuel	\$97,597	18%	\$93,829	18%	\$93,937	16%
Repairs & Maintenance <sup>c</sup>	\$37,510	7%	\$36,936	7%	\$37,683	7%
Refrigeration expenses	\$0	0%	\$0	0%	\$0	0%
Provisions	\$8,226	2%	\$8,100	2%	\$8,264	1%
Labour - paid	\$258,026	48%	\$245,997	47%	\$285,403	50%
(2) Labour - unpaid <sup>d</sup>	\$1,806	0%	\$1,722	0%	\$1,997	0%
Other	\$16,596	3%	\$17,054	3%	\$17,716	3%
(3) Total Variable Costs	\$419,760	79%	\$403,637	77%	\$445,002	78%
Fixed Costs						
Licence Fee	\$23,365	4%	\$22,380	4%	\$22,721	4%
Insurance	\$18,874	4%	\$19,395	4%	\$20,149	4%
(4) Interest	\$39,512	7%	\$45,607	9%	\$47,078	8%
(5) Labour - unpaid <sup>d</sup>	\$8,545	2%	\$8,784	2%	\$9,092	2%
(6) Leasing	-		-		-	
Legal & Accounting	\$10,035	2%	\$10,312	2%	\$10,712	2%
Telephone etc.	\$3,514	1%	\$3,610	1%	\$3,751	1%
Slipping, Mooring and Boat Survey	\$2,776	1%	\$2,853	1%	\$2,964	1%
Travel	\$1,455	0%	\$1,495	0%	\$1,553	0%
Office & Admin	\$6,161	1%	\$6,331	1%	\$6,577	1%
(7) Total Fixed Costs	\$114,237	21%	\$120,768	23%	\$124,597	22%
(8) Total Boat Cash Costs (3 + 7)	\$533,997	100%	\$524,405	100%	\$569,599	100%
Boat Gross Margin (1 - 3)	\$276,022		\$241,641		\$278,314	
(9) Total Unpaid Labour (2 + 5)	\$10,351		\$10,506		\$11,089	
Gross Operating Surplus (1 - 8 + 9)	\$172,137		\$131,379		\$164,806	
(10) Boat Cash Income (1 - 8)	\$161,786		\$120,873		\$153,717	
(11) Depreciation	\$144,522		\$147,678		\$151,154	
(12) Boat Business Profit (10 - 11)	\$17,263		-\$26,805		\$2,563	
(13) Profit at Full Equity (12 + 4)	\$56,775		\$18,802		\$49,641	
Boat Capital						
(14) Fishing Gear & Equip	\$1,803,081		\$1,842,455		\$1,885,818	
Licence Value	\$3,450,370		\$3,199,923		\$3,586,907	
(15) Total Boat Capital	\$5,253,451		\$5,042,378		\$5,472,725	
Rate of Return on Fishing Gear & Equip (13 / 14 * 100)	3.1%		1.0%		2.6%	
Rate of Return on Total Boat Capital (13 / 15 * 100)	1.1%		0.4%		0.9%	

<sup>a</sup> Estimates of financial performance for the years 2008/09 to 2010/11 are based on the 2008 licence holder survey. All figures are presented in nominal terms.

<sup>b-d</sup> See Appendix Table 3-1 footnotes.

Source: BDO EconSearch (2022a)



Appendix Table 3-4 Financial performance in the Spencer Gulf Prawn Fisheries, 2011/12 to 2013/14 (average per boat)<sup>a</sup>

	2011/12		2012/13		2013/14	
	Average per boat	Share of TBCC <sup>b</sup>	Average per boat	Share of TBCC <sup>b</sup>	Average per boat	Share of TBCC <sup>b</sup>
(1) Total Boat Gross Income	\$605,978		\$708,843		\$717,470	
Variable Costs						
Fuel	\$107,580	20%	\$80,507	16%	\$83,037	16%
Repairs & Maintenance <sup>c</sup>	\$41,840	8%	\$48,263	10%	\$49,558	10%
Refrigeration expenses	\$0	0%	\$6,340	1%	\$6,510	1%
Provisions	\$9,176	2%	\$5,524	1%	\$5,672	1%
Labour - paid	\$247,195	45%	\$238,222	48%	\$236,765	48%
(2) Labour - unpaid <sup>d</sup>	\$1,730	0%	\$2,589	1%	\$2,662	1%
Other	\$17,921	3%	\$541	0%	\$555	0%
(3) Total Variable Costs	\$425,442	78%	\$381,985	77%	\$384,759	78%
Fixed Costs						
Licence Fee	\$22,738	4%	\$26,030	5%	\$26,426	5%
Insurance	\$20,382	4%	\$19,713	4%	\$19,197	4%
(4) Interest	\$43,295	8%	\$23,705	5%	\$23,084	5%
(5) Labour - unpaid <sup>d</sup>	\$9,400	2%	\$4,751	1%	\$4,906	1%
(6) Leasing	-		-		-	
Legal & Accounting	\$10,836	2%	\$10,652	2%	\$10,985	2%
Telephone etc.	\$3,794	1%	\$3,183	1%	\$3,283	1%
Slipping, Mooring and Boat Survey	\$2,998	1%	\$8,594	2%	\$8,863	2%
Travel	\$1,571	0%	\$1,272	0%	\$1,311	0%
Office & Admin	\$6,653	1%	\$15,153	3%	\$15,627	3%
(7) Total Fixed Costs	\$121,666	22%	\$113,053	23%	\$113,683	22%
(8) Total Boat Cash Costs (3 + 7)	\$547,108	100%	\$495,038	100%	\$498,441	100%
Boat Gross Margin (1 - 3)	\$180,536		\$326,858		\$332,711	
(9) Total Unpaid Labour (2 + 5)	\$11,130		\$7,340		\$7,568	
Gross Operating Surplus (1 - 8 + 9)	\$69,999		\$221,145		\$226,596	
(10) Boat Cash Income (1 - 8)	\$58,869		\$213,805		\$219,028	
(11) Depreciation	\$139,039		\$117,552		\$104,335	
(12) Boat Business Profit (10 - 11)	-\$80,169		\$96,252		\$114,693	
(13) Profit at Full Equity (12 + 4)	-\$36,874		\$119,957		\$137,777	
Boat Capital						
(14) Fishing Gear & Equip	\$1,734,664		\$1,045,520		\$927,968	
Licence Value	\$3,005,031		\$3,065,000		\$3,102,303	
(15) Total Boat Capital	\$4,739,695		\$4,110,520		\$4,030,271	
Rate of Return on Fishing Gear & Equip (13 / 14 * 100)	-2.1%		11.5%		14.8%	
Rate of Return on Total Boat Capital (13 / 15 * 100)	-0.8%		2.9%		3.4%	

<sup>a</sup> Estimates of financial performance for the year 2011/12 are based on the 2008 licence holder survey and estimates for the years 2012/13 and 2013/14 are based on the 2014 licence holder survey. All figures are presented in nominal terms.

<sup>b-d</sup> See Appendix Table 3-1 footnotes.

Source: BDO EconSearch (2022a)

Appendix Table 3-5 Financial performance in the Spencer Gulf Prawn Fisheries, 2014/15 to 2016/17 (average per boat)<sup>a</sup>

	2014/15		2015/16		2016/17	
	Average per boat	Share of TBCC <sup>b</sup>	Average per boat	Share of TBCC <sup>b</sup>	Average per licence	Share of TBCC <sup>b</sup>
(1) Total Boat Gross Income	\$742,574		\$878,504		\$890,688	
Variable Costs						
Fuel	\$75,343	16%	\$77,162	13%	\$77,316	12%
Repairs & Maintenance <sup>c</sup>	\$46,619	10%	\$98,723	16%	\$100,284	16%
Refrigeration expenses	\$6,124	1%	\$6,681	1%	\$6,786	1%
Provisions	\$5,336	1%	\$9,534	2%	\$9,685	2%
Labour - paid	\$233,403	48%	\$303,784	50%	\$310,447	50%
(2) Labour - unpaid <sup>d</sup>	\$2,537	1%	\$7,231	1%	\$7,389	1%
Other	\$522	0%	\$852	0%	\$866	0%
(3) Total Variable Costs	\$369,885	76%	\$503,966	83%	\$512,773	82%
Fixed Costs						
Licence Fee	\$27,500	6%	\$24,677	4%	\$28,843	5%
Insurance	\$20,581	4%	\$18,235	3%	\$18,130	3%
(4) Interest	\$21,843	4%	\$7,376	1%	\$7,334	1%
(5) Labour - unpaid <sup>d</sup>	\$5,031	1%	\$9,741	2%	\$9,954	2%
(6) Leasing	-		\$4,718	1%	\$4,787	1%
Legal & Accounting	\$11,120	2%	\$7,232	1%	\$7,346	1%
Telephone etc.	\$3,323	1%	\$3,140	1%	\$3,189	1%
Slipping, Mooring and Boat Survey	\$8,985	2%	\$17,502	3%	\$17,779	3%
Travel	\$1,328	0%	\$854	0%	\$867	0%
Office & Admin	\$15,819	3%	\$12,318	2%	\$12,513	2%
(7) Total Fixed Costs	\$115,530	24%	\$105,792	17%	\$110,743	18%
(8) Total Boat Cash Costs (3 + 7)	\$485,415	100%	\$609,758	100%	\$623,516	100%
Boat Gross Margin (1 - 3)	\$372,689		\$374,538		\$377,914	
(9) Total Unpaid Labour (2 + 5)	\$7,568		\$16,971		\$17,343	
Gross Operating Surplus (1 - 8 + 9)	\$264,726		\$285,717		\$284,515	
(10) Boat Cash Income (1 - 8)	\$257,158		\$268,746		\$267,171	
(11) Depreciation	\$92,604		\$94,035		\$88,001	
(12) Boat Business Profit (10 - 11)	\$164,554		\$174,711		\$179,171	
(13) Profit at Full Equity (12 + 4)	\$186,397		\$182,087		\$186,505	
Boat Capital						
(14) Fishing Gear & Equip	\$823,633		\$1,465,433		\$1,371,398	
Licence Value	\$3,210,851		\$3,659,375		\$3,713,430	
(15) Total Boat Capital	\$4,034,484		\$5,124,808		\$5,084,828	
Rate of Return on Fishing Gear & Equip (13 / 14 * 100)	22.6%		12.7%		13.9%	
Rate of Return on Total Boat Capital (13 / 15 * 100)	4.6%		3.6%		3.8%	

<sup>a</sup> Estimates of financial performance for the year 2014/15 are based on the 2014 licence holders survey and estimates for the years 2015/16 and 2016/17 are based on the 2017 licence holder survey. All figures are presented in nominal terms.

<sup>b-d</sup> See Appendix Table 3-1 footnotes.

Source: BDO EconSearch (2022a)

Appendix Table 3-6 Financial performance in the Spencer Gulf Prawn Fisheries, 2017/18 and 2018/19 (average per boat)<sup>a</sup>

	2017/18		2018/19	
	Average per licence	Share of TBCC <sup>b</sup>	Average per licence	Share of TBCC <sup>d</sup>
(1) Total Boat Gross Income	\$998,499		\$1,000,807	
Variable Costs				
Fuel	\$81,874	13%	\$84,660	12%
Repairs & Maintenance <sup>c</sup>	\$104,830	16%	\$97,413	13%
Refrigeration expenses	\$7,094	1%	\$5,000	1%
Provisions	\$10,124	2%	\$4,604	1%
Labour - paid	\$322,658	50%	\$360,506	50%
(2) Labour - unpaid <sup>d</sup>	\$7,680	1%	\$1,994	0%
Other	\$905	0%	\$367	0%
(3) Total Variable Costs	\$535,165	82%	\$554,544	77%
Fixed Costs				
Licence Fee	\$30,012	5%	\$29,982	4%
Insurance	\$19,015	3%	\$20,106	3%
(4) Interest	\$7,334	1%	\$49,969	7%
(5) Labour - unpaid <sup>d</sup>	\$10,160	2%	\$3,289	0%
(6) Leasing	\$2,336	0%	\$6,243	1%
Legal & Accounting	\$7,541	1%	\$4,702	1%
Telephone etc.	\$3,274	1%	\$2,891	0%
Slipping, Mooring and Boat Survey	\$18,252	3%	\$21,038	3%
Travel	\$890	0%	\$550	0%
Office & Admin	\$12,845	2%	\$29,493	4%
(7) Total Fixed Costs	\$114,688	18%	\$168,263	23%
(8) Total Boat Cash Costs (3 + 7)	\$649,853	100%	\$722,807	100%
Boat Gross Margin (1 - 3)	\$463,334		\$446,263	
(9) Total Unpaid Labour (2 + 5)	\$17,840		\$5,283	
Gross Operating Surplus (1 - 8 + 9)	\$366,486		\$283,282	
(10) Boat Cash Income (1 - 8)	\$348,646		\$278,000	
(11) Depreciation	\$82,354		\$119,041	
(12) Boat Business Profit (10 - 11)	\$266,292		\$158,959	
(13) Profit at Full Equity (12 + 4)	\$273,626		\$215,172	
Boat Capital				
(14) Fishing Gear & Equip	\$1,283,398		\$1,549,163	
Licence Value	\$4,160,907		\$4,498,077	
(15) Total Boat Capital	\$5,444,304		\$6,047,239	
Rate of Return on Fishing Gear & Equip (13 / 14 * 100)	21.7%		13.9%	
Rate of Return on Total Boat Capital (13 / 15 * 100)	5.1%		3.6%	

<sup>a</sup> Estimates of financial performance for the year 2017/18 are based on the 2017 licence holders survey and those for the year 2018/19 are based on the 2019 licence holders survey. All figures are presented in nominal terms.

<sup>b-d</sup> See Appendix Table 3-1 footnotes.

Source: BDO EconSearch (2022a)

## APPENDIX 4 Nominal Licence Fees and Net Economic Return

Appendix Table 4-1 Costs of management in the Spencer Gulf Prawn Fisheries, 2002/03 to 2022/23<sup>a</sup>

	Licence Fee (\$'000)	GVP		Catch		Licences	
		Total GVP (\$'000)	Fee/ GVP (%)	Total Catch (tonnes)	Fee/ catch (\$/kg)	(No. of L)	Fee/ Licence (\$/Licence)
2002/03	671	27,681	2.4%	1,479	\$0.45	39	\$17,193
2003/04	753	40,171	1.9%	1,943	\$0.39	39	\$19,316
2004/05	734	31,759	2.3%	1,939	\$0.38	39	\$18,826
2005/06	803	33,610	2.4%	1,870	\$0.43	39	\$20,587
2006/07	899	39,386	2.3%	2,024	\$0.44	39	\$23,053
2007/08	1,012	32,163	3.1%	2,028	\$0.50	39	\$25,959
2008/09	963	29,549	3.3%	1,821	\$0.53	39	\$24,700
2009/10	917	27,450	3.3%	2,361	\$0.39	39	\$23,508
2010/11	921	30,335	3.0%	1,979	\$0.47	39	\$23,617
2011/12	921	24,460	3.8%	1,675	\$0.55	39	\$23,619
2012/13	994	27,361	3.6%	1,699	\$0.58	39	\$25,476
2013/14	1,009	27,694	3.6%	1,675	\$0.60	39	\$25,864
2014/15	1,050	28,663	3.7%	1,664	\$0.63	39	\$26,915
2015/16	895	38,452	2.3%	2,180	\$0.41	39	\$22,950
2016/17	1,046	39,020	2.7%	2,038	\$0.51	39	\$26,825
2017/18	1,089	43,722	2.5%	2,361	\$0.46	39	\$27,912
2018/19	1,145	41,493	2.8%	2,121	\$0.54	39	\$29,348
2019/20	1,102	22,833	4.8%	1,743	\$0.63	39	\$28,256
2020/21	1,055	35,653	3.0%	1,837	\$0.57	39	\$27,049
2021/22	967	29,085	3.3%	1,372	\$0.71	39	\$24,805
2022/23	1,054	n.a.	-	n.a.	-	39	\$27,035

<sup>a</sup> Values are in nominal terms.

Source: PIRSA Fisheries and SARDI Aquatic Sciences

Appendix Table 4-2 Net Economic Return <sup>a</sup> in the Spencer Gulf Prawn Fisheries, 2002/03 to 2021/22 (\$'000)

	Gross Income	Less Labour	Less Cash Costs	Less Depreciation	Less Opportunity Cost of Capital (@10%)	Net Economic Return
2002/03	28,219	12,013	7,305	5,362	5,493	-1,954
2003/04	40,389	17,270	7,601	5,678	5,817	4,023
2004/05	31,349	10,512	9,280	7,110	6,446	-1,998
2005/06	33,968	11,796	9,199	6,465	5,862	646
2006/07	39,386	14,147	9,451	6,430	5,830	3,527
2007/08	32,950	12,203	9,694	6,266	7,817	-3,030
2008/09	30,805	11,882	10,011	6,399	7,983	-5,469
2009/10	28,569	11,356	9,842	6,538	8,157	-7,325
2010/11	32,024	13,127	10,007	6,692	8,349	-6,151
2011/12	26,829	11,437	10,869	6,156	7,680	-9,313
2012/13	27,361	9,479	8,715	4,537	4,036	595
2013/14	27,694	9,746	8,917	4,027	3,582	1,422
2014/15	28,663	9,301	8,592	3,574	3,179	4,016
2015/16	38,452	13,958	12,460	4,092	6,377	1,566
2016/17	39,020	14,264	12,758	3,829	5,968	2,202
2017/18	43,722	14,817	12,909	3,584	5,585	6,828
2018/19	41,493	14,901	12,254	4,849	6,311	3,179
2019/20	22,833	11,421	10,151	4,477	5,826	-9,040
2020/21	35,653	14,961	12,123	4,494	5,848	-1,772
2021/22	29,085	10,142	11,431	3,413	6,279	-2,180

<sup>a</sup> Adjusted for sample bias. Values are in nominal terms.

Source: PIRSA Fisheries and SARDI Aquatic Sciences



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